3GPP TSG CN Plenary Meeting #18 **NP-020594**
4th – 6th December 2002 New Orleans, USA.

Source: TSG CN WG4

Title: Corrections on Camel Phase 4

Agenda item: 8.3

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
29.002	496		N4-021264	Rel-5	Additional MM-Code for MG-CSI	F	5.3.0
29.002	490		N4-021194	Rel-5	Clarification of the use of Requested CAMEL Subscription Info parameters	F	5.3.0
29.002	495		N4-021252	Rel-5	Correction to RCH – adding O-CSI trigger criteria	F	5.3.0
29.002	474	2	N4-021294	Rel-5	Correction of handling of MT-SMS in the SGSN	F	5.3.0
29.002	497	1	N4-021296	Rel-5	Additional handling of partial implementations of CAMEL phase 4	F	5.3.0
29.232	052	2	N4-021395	Rel-5	CAMEL4 flexible tone package	F	5.3.0
29.002	513		N4-021443	Rel-5	Reference to TS 23.078 in TS 29.002 regarding handling of VMSC address is missing	F	5.3.0
29.002	522		N4-021531	Rel-5	Introduction of the CHOICE element “netDetNotReachable” for PS-SubscriberState	F	5.3.0

3GPP TSG CN WG2 Meeting #25 ***N2-020925***
Miami, Florida, USA, 23rd – 27th September 2002 **(Revision of N2-020808)**

3GPP TSG CN WG4 Meeting #15 ***N4-021294***
Miami, Florida, USA, 23rd – 27th September 2002 **(Revision of N4-021120)**

CR-Form-v7

CHANGE REQUEST

⌘ **29.002** **CR** **474** ⌘ **rev** **2** ⌘ Current version: **5.3.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction of handling of MT-SMS in the SGSN
Source:	⌘	CN4
Work item code:	⌘	CAMEL4
Date:	⌘	23/07/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The current SDL description of the behaviour of the SGSN does not deal properly with the cases where the subscription does not allow SMS delivery or where paging fails. There is no check of whether the SGSN supports CAMEL or whether the subscriber has MT-SMS-CSI before the dialogue with the gsmSCF is opened. According to the SDL, the CAMEL dialogue is opened before the check on whether the SGSN supports MT SMS and the check on whether the subscriber has MT SMS subscribed (different from the handling in the MSC/VLR, and misalignment between text and SDL). Further, the SDL shows the use of paging and search macros which are defined for the MSC, and therefore show communication with the VLR.
Summary of change:	⌘	Replace the current SDL description of the SGSN behaviour to show the reporting of delivery failure to the gsmSCF when necessary. Add check of CAMEL capability of SGSN and CSI check before opening the dialogue with the gsmSCF. Move the (possible) opening of the dialogue with the gsmSCF to start after the successful check for MT-SMS support in the SGSN and subscription for MT-SMS Add new procedures for paging and search to be called instead of the macros for paging and search in the MSC.
Consequences if not approved:	⌘	Some delivery failure cases which should be reported to the gsmSCF are not reported; dialogues between gprsSSF and gsmSCF will not be shut down cleanly.

Clauses affected:	⌘	23.3.5; Figures 23.3/9; 23.3/10; 23.3/10a (new); 23.3/10b (new)			
Other specs affected:	⌘	**Y** / **N** **X** /	Other core specifications	⌘	CR 23.078-449
		/ **X**	Test specifications		
		/ **X**	O&M Specifications		
Other comments:	⌘	The term "servicing SGSN" has been systematically replaced by "serving SGSN". The name for the SMS-GMSC has been systematically used to replace the varying names in the current text. The names of the process and the macro for short message delivery in the SGSN have been changed to "MT_SM_SGSN" and "MT_SM_Transfer_SGSN" respectively, to align with the names for the MSC process and macro. The page numbering convention for SDL diagrams has been changed. The possible opening of the dialogue with the gsmSCF has been moved from the parent process (now MT_SM_SGSN) to the macro (now MT_SM_Transfer_SGSN).			

****** First modified section ******

23.3.5 Procedure in the Servicing SGSN

When initiating the dialogue with the servicing SGSN, the SMS- Gateway GMSC must provide the IMSI of the subscriber to whom the short message is directed.

The IMSI is included in the sm-RP-DA information field of the MAP_MT_FORWARD_SHORT_MESSAGE indication.

When receiving a MAP_OPEN indication primitive that is not associated with any MAP service indication primitive and if the dialogue is accepted, the MAP service-user in the servicing SGSN issues a MAP_DELIMITER request primitive in order to trigger the local MAP service-provider to confirm the dialogue.

When receiving the first MAP_MT_FORWARD_SHORT_MESSAGE indication from the gateway SMS-GMSC, the servicing SGSN performs some subscriber data checks, if the MAP service primitive is accepted and if short message service is supported in the servicing SGSN.

The MAP_MT_FORWARD_SHORT_MESSAGE indication primitive is checked by the macro "Check_Indication". If the received MAP service primitive contains errors, the service is aborted and an unexpected data value error or data missing error is returned to the SMS-GMSC.

If the SGSN does not support the short message service, the service is aborted in the servicing SGSN and the error "Facility Not Supported" is returned to the SMS-GMSC.

If the connection is GPRS suspended, the SGSN sends to the SMS-GMSC an error specifying that the GPRS connection is suspended.

The subscriber identity information that are included in the MAP service indication primitive is checked by the macro "Check_Subscr_Identity_For_MT_SMS" as follows:

If the IMSI is included in the sm-RP-DA information field of the MAP_MT_FORWARD_SHORT_MESSAGE indication, the MAP_OPEN indication received from the gateway SMS-GMSC shall not include a Destination Reference.

If no Destination Reference has been received and the sm-RP-DA information field does not cover include an IMSI the service is aborted in the servicing SGSN and the error "Unexpected Data Value" is returned to the SMS-GMSC.

The following outcomes from the subscriber data checks can occur in SGSN:

- if the mobile subscriber is unknown, the unidentified subscriber error is forwarded to the SMS-GMSC;
- if the “Confirmed by HLR” indicator is set to “Not Confirmed”, the unidentified subscriber error is forwarded to the SMS-GMSC.
- if the GPRS Detached Flag is set to detached or the LA Not Allowed Flag is set to not allowed in the SGSN, an absent subscriber error with the diagnostic indication set to 'GPRS Detached' is forwarded to the SMS-GMSC and the MS not reachable for GPRS (MNRG) flag is set;
- If the location area identification is known and the "Confirmed by Radio Contact" indicator is set to "Confirmed", the paging procedure is invoked (see clause 25.3). Otherwise the search procedure is invoked (see clause 25.3).

After the subscriber data checks the SGSN checks whether a CAMEL dialogue should be opened as specified in 3GPP TS 23.078. If required, the SGSN opens a CAMEL dialogue as specified in 3GPP TS 23.078. If the CAMEL service bars the MT SM then the failure is reported to the SMS-GMSC, and the MT SM is not delivered to MS.

The result of the paging or the search procedure is processed as follows:

- if the procedure is completed successfully, the SGSN may trigger the Authentication, Ciphering and IMEI check procedures (see clauses 25.4 and 25.5). Then, if the procedures are completed successfully, the SGSN will send the short message to the MS;

- if the procedure is completed successfully, but the MS has no mobile terminated short message transfer capability, the SM delivery failure indication with cause "equipment not SM equipped" is provided to the SMS-GMSC. The failure in the MT SM delivery is reported to the gsmSCF as specified in 3GPP TS 23.078;

- if the procedure is ended unsuccessfully because ~~of~~ the subscriber is already busy for SMS or engaged in~~, another paging, emergency call,~~ location updating or~~,~~ inter SGSN routing area update~~ or a call set up~~, the SGSN sends a subscriber busy for MT SMS error ~~is provided~~ to the SMS-GMSC. The failure in the MT SM delivery is reported to the gsmSCF as specified in 3GPP TS 23.078;

- if the procedure is ended unsuccessfully because there is no response to paging, the SGSN sends an absent subscriber_SM error ~~is forwarded~~ to the SMS-GMSC with the absent subscriber diagnostic indication set to 'No Paging Response for GPRS'; ~~, but~~ if the location area is unknown, the SGSN sends a system failure ~~indication~~ error ~~is provided~~ to the SMS-GMSC. The failure in the MT SM delivery is reported to the gsmSCF as specified in 3GPP TS 23.078.

If forwarding of the short message is initiated, the SGSN awaits the result before one of the following responses is sent back to the SMS-GMSC:

- an acknowledgement if the short message has been successfully delivered to the mobile subscriber. The successful MT SM delivery is reported to the gsmSCF as specified in 3GPP TS 23.078;

- an SM delivery failure error containing a parameter indicating either of the following: there is a MS protocol error or the MS memory capacity is exceeded; detailed diagnostic information (see clause 7.6.1.4) may also be carried. The failure in the MT SM delivery is reported to the gsmSCF as specified in 3GPP TS 23.078;

- a system failure error if the delivery procedure is aborted. The failure in the MT SM delivery is reported to the gsmSCF as specified in 3GPP TS 23.078.

If the More Messages To Send flag was FALSE or the service MAP_MT_FORWARD_SHORT_MESSAGE ends unsuccessfully, the transaction to the ~~gateway~~ SMS-GMSC is terminated. If the More Messages To Send flag was TRUE, then the serv~~ic~~ing SGSN waits for the next short message from the Service Centre.

When receiving the next MAP_MT_FORWARD_SHORT_MESSAGE indication from the ~~gateway~~ SMS-GMSC the serv~~ic~~ing SGSN will act as follows:

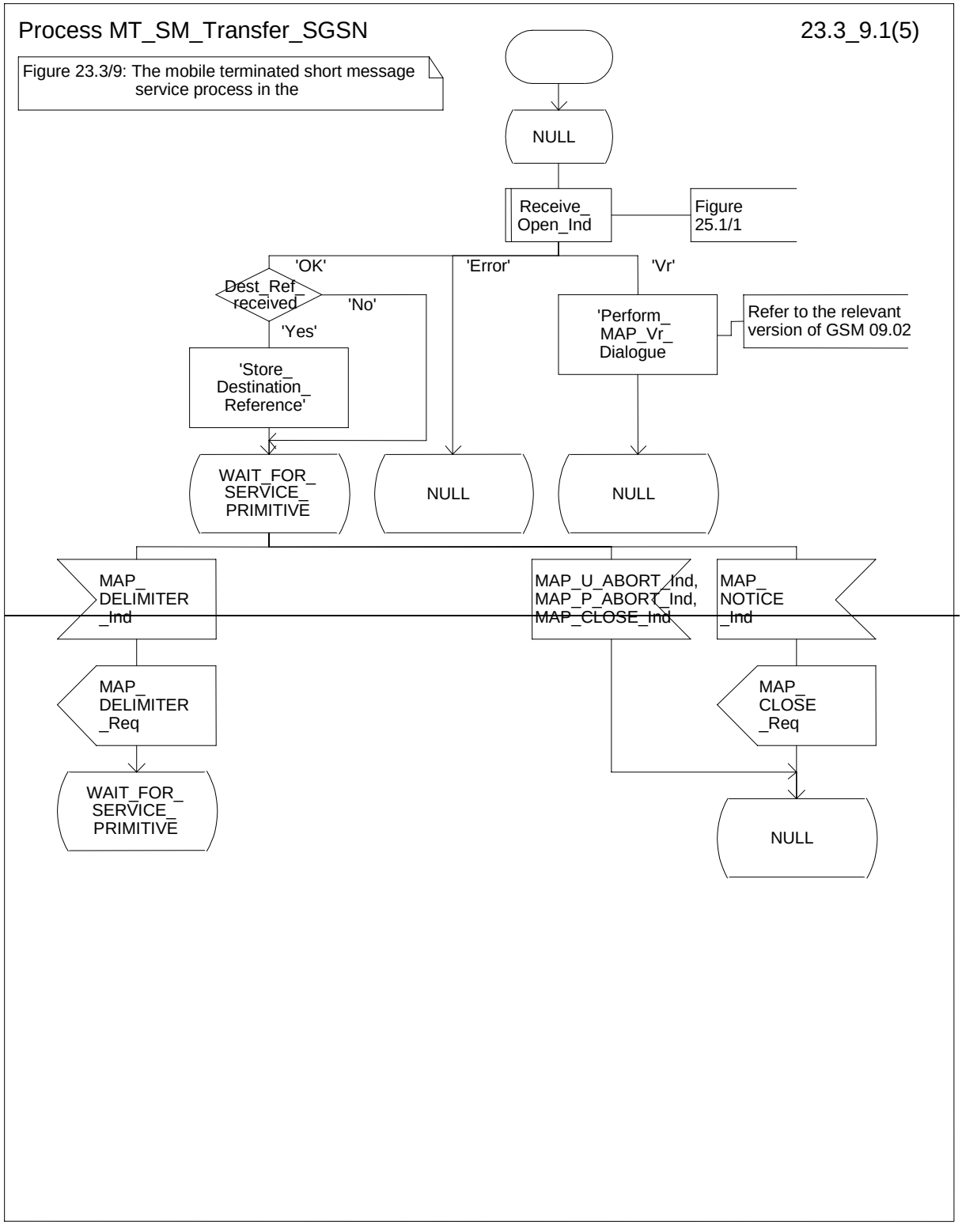
- if the received primitive contains errors, the unexpected data value error or data missing error is provided to the ~~gateway~~ SMS-GMSC;

- ~~The~~ the SGSN opens a CAMEL dialogue as specified in 3GPP TS 23.078 for each SM. If the CAMEL service bars the MT SM then the failure is reported to the SMS-GMSC, and the MT SM is not delivered to the MS.

- if the More Messages To Send flag is FALSE, the serv~~ic~~ing SGSN will start the short message transfer procedure to the mobile subscriber. The successful or unsuccessful outcome of this procedure is reported to the gsmSCF as specified in 3GPP TS 23.078 and to the ~~gateway~~ SMS-GMSC, and the transaction is terminated.

- if the More Messages To Send flag is TRUE, the serv~~ic~~ing SGSN will start the short message transfer to the mobile subscriber. If the outcome of this procedure is unsuccessful, the SM delivery failure is reported to the gsmSCF and the reason is reported to the ~~gateway~~ SMS-GMSC and the procedure is terminated. If the procedure is successful, then the MT SM delivery is reported to the gsmSCF as specified in 3GPP TS 23.078, and it is acknowledged to the ~~gateway~~ SMS-GMSC and more short messages can be received.

The mobile terminated short message transfer procedure in the serv~~ic~~ing SGSN is shown in figures 23.3/9 and 23.3/10. The page and search procedures are shown in figureS 23~~5~~.3/10a and 23~~5~~.3/10b~~2~~.


Process MT_SM_Transfer_SGSN
23.3_9.1(5)
Figure 23.3/9: The mobile terminated short message service process in the
NULL
Receive_ Open_Ind
Figure 25.1/1
'OK'
'Error'
'Vr'
Dest_Ref_ received
'No'
'Yes'
'Store_ Destination_ Reference'
'Perform_ MAP_Vr_ Dialogue
Refer to the relevant version of GSM 09.02
WAIT_FOR_ SERVICE_ PRIMITIVE
NULL
NULL
MAP_ DELIMITER _Ind
MAP_U_ABORT_Ind, MAP_P_ABORT_Ind, MAP_CLOSE_Ind
MAP_ NOTICE _Ind
MAP_ DELIMITER _Req
MAP_ CLOSE _Req
WAIT_FOR_ SERVICE_ PRIMITIVE
NULL

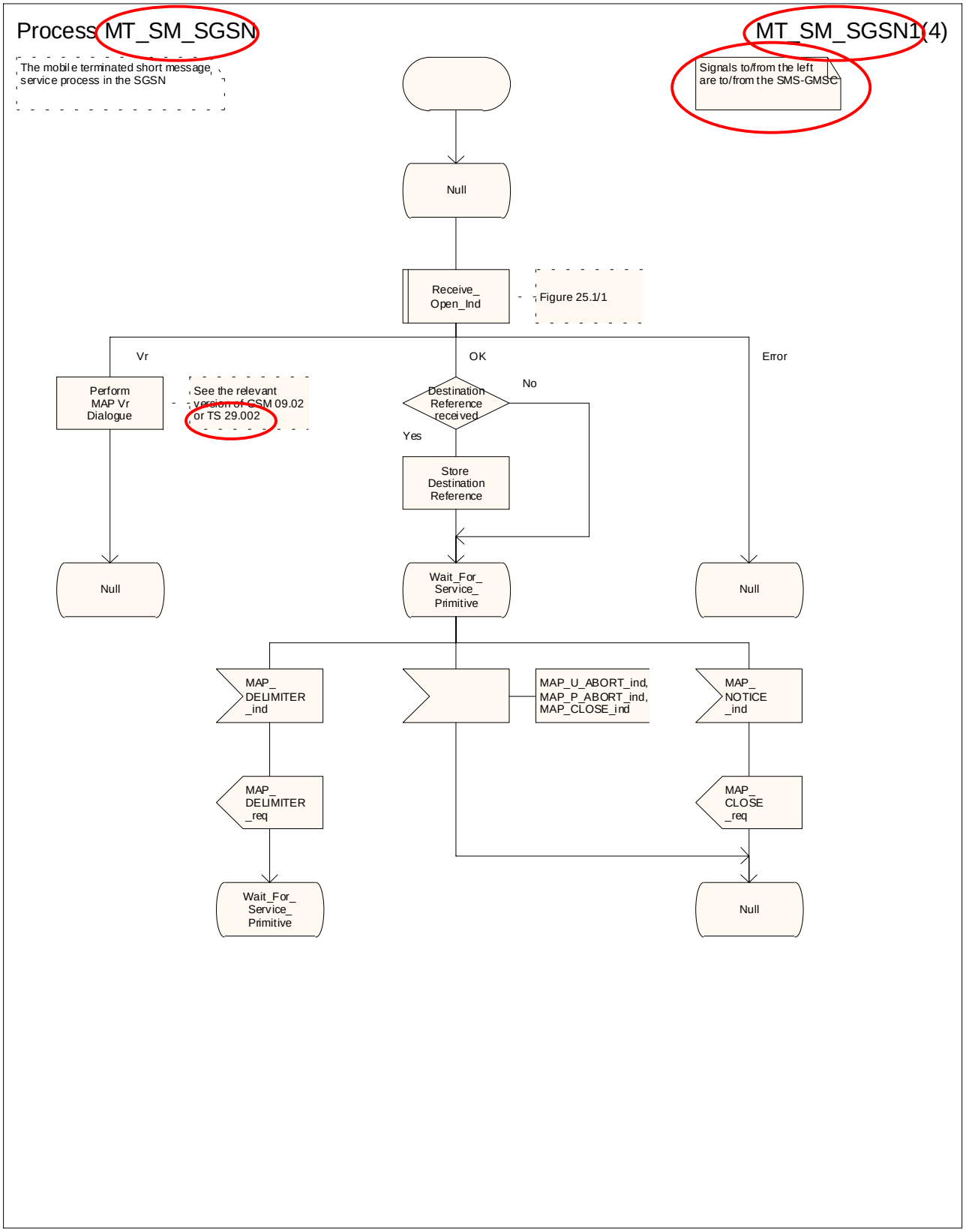
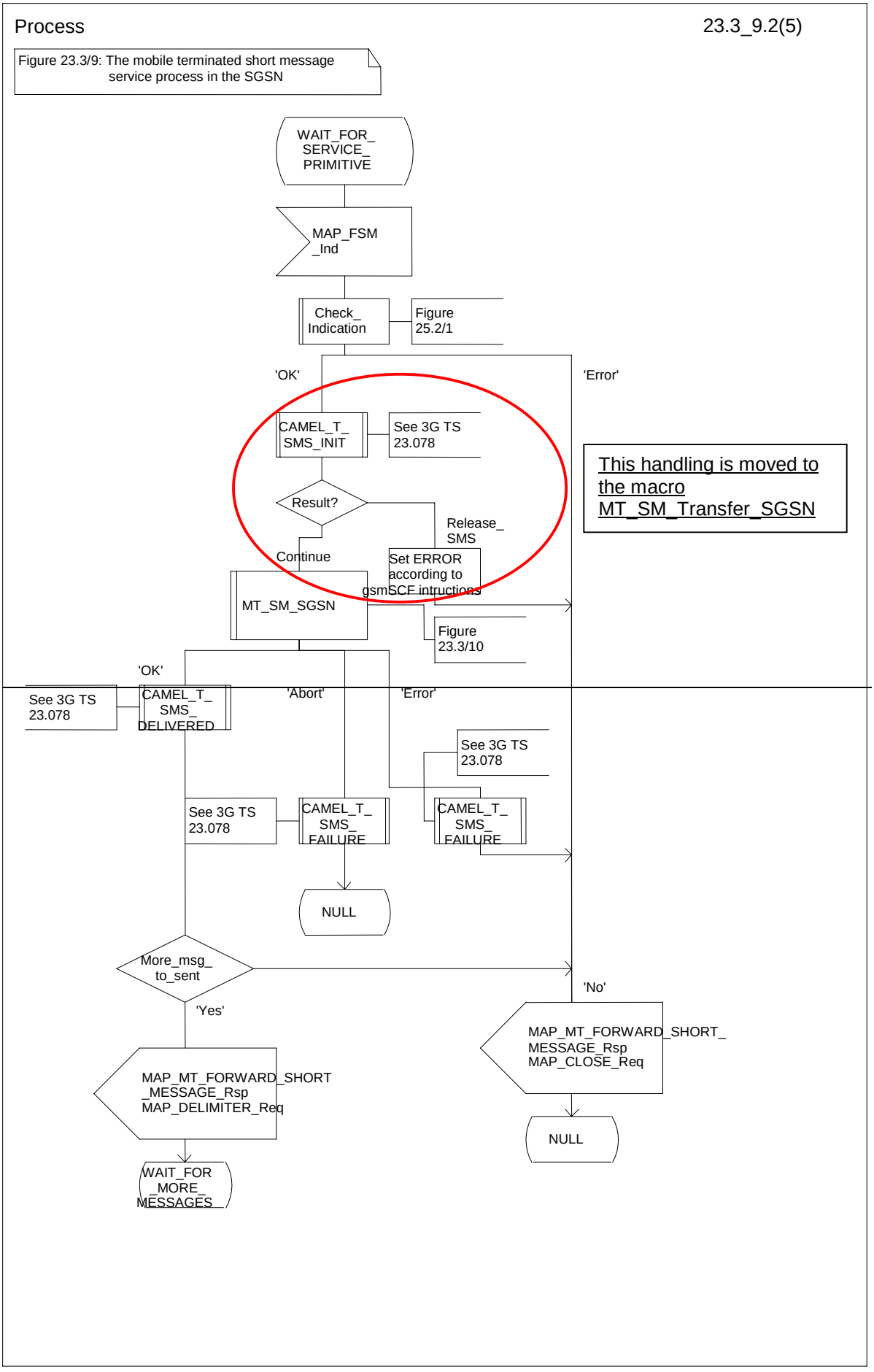


Figure 23.3/9 (sheet 1 of ~~4~~5): Process~~dure~~ MT_SM_~~Transfer_~~SGSN


Process
23.3_9.2(5)
Figure 23.3/9: The mobile terminated short message service process in the SGSN
WAIT_FOR_ SERVICE_ PRIMITIVE
MAP_FSM _Ind
Check_ Indication
Figure 25.2/1
'OK'
'Error'
CAMEL_T_ SMS_INIT
See 3G TS 23.078
Result?
Release_ SMS
Continue
Set ERROR according to gsmSCF intructions
MT_SM_SGSN
Figure 23.3/10
This handling is moved to the macro MT_SM_Transfer_SGSN
'OK'
'Abort'
'Error'
See 3G TS 23.078
CAMEL_T_ SMS_ DELIVERED
See 3G TS 23.078
See 3G TS 23.078
CAMEL_T_ SMS_ FAILURE
CAMEL_T_ SMS_ FAILURE
NULL
More_msg_ to_sent
'No'
'Yes'
MAP_MT_FORWARD_SHORT_ MESSAGE_Rsp MAP_CLOSE_Req
MAP_MT_FORWARD_SHORT _MESSAGE_Rsp MAP_DELIMITER_Req
NULL
WAIT_FOR _MORE_ MESSAGES

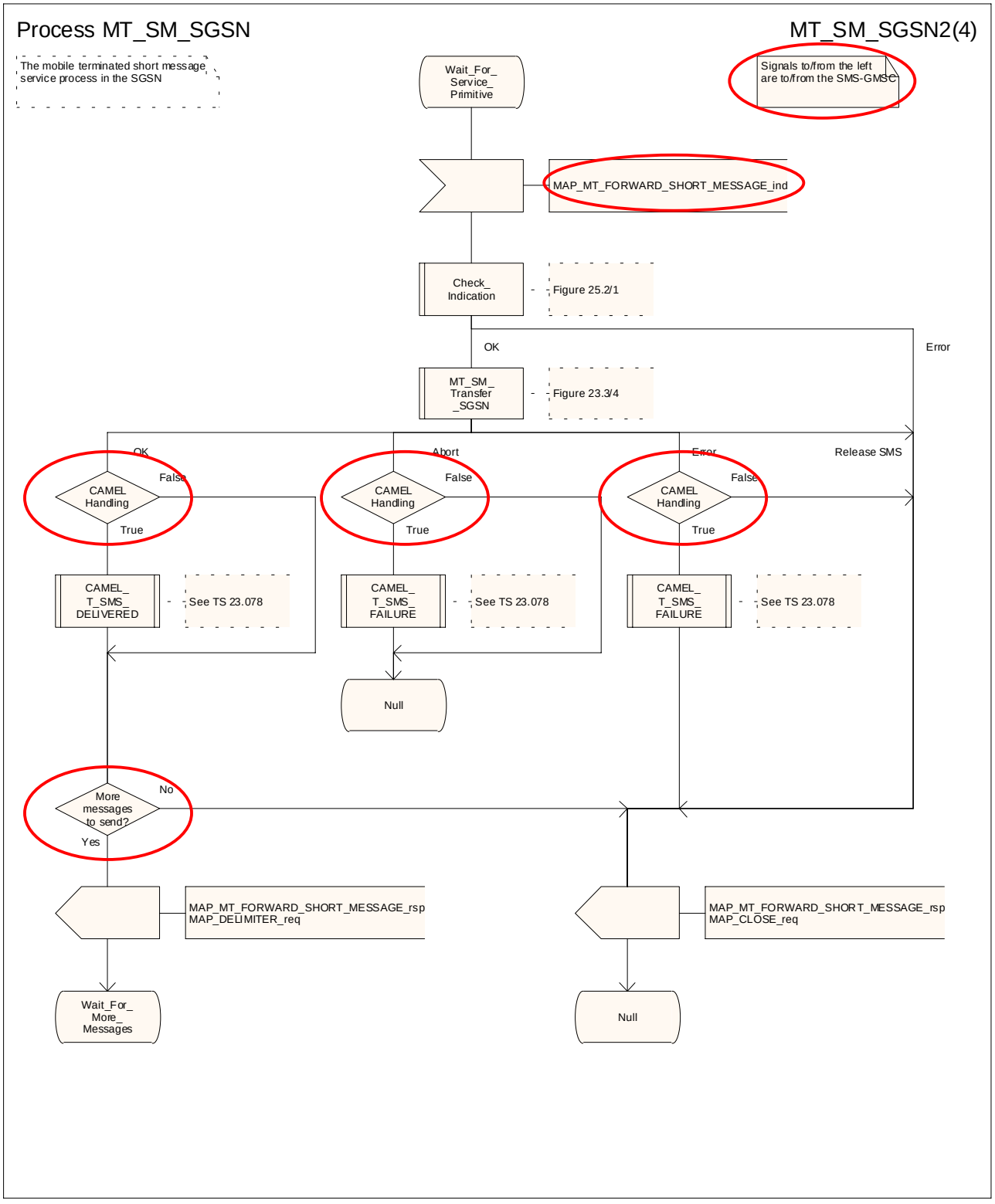
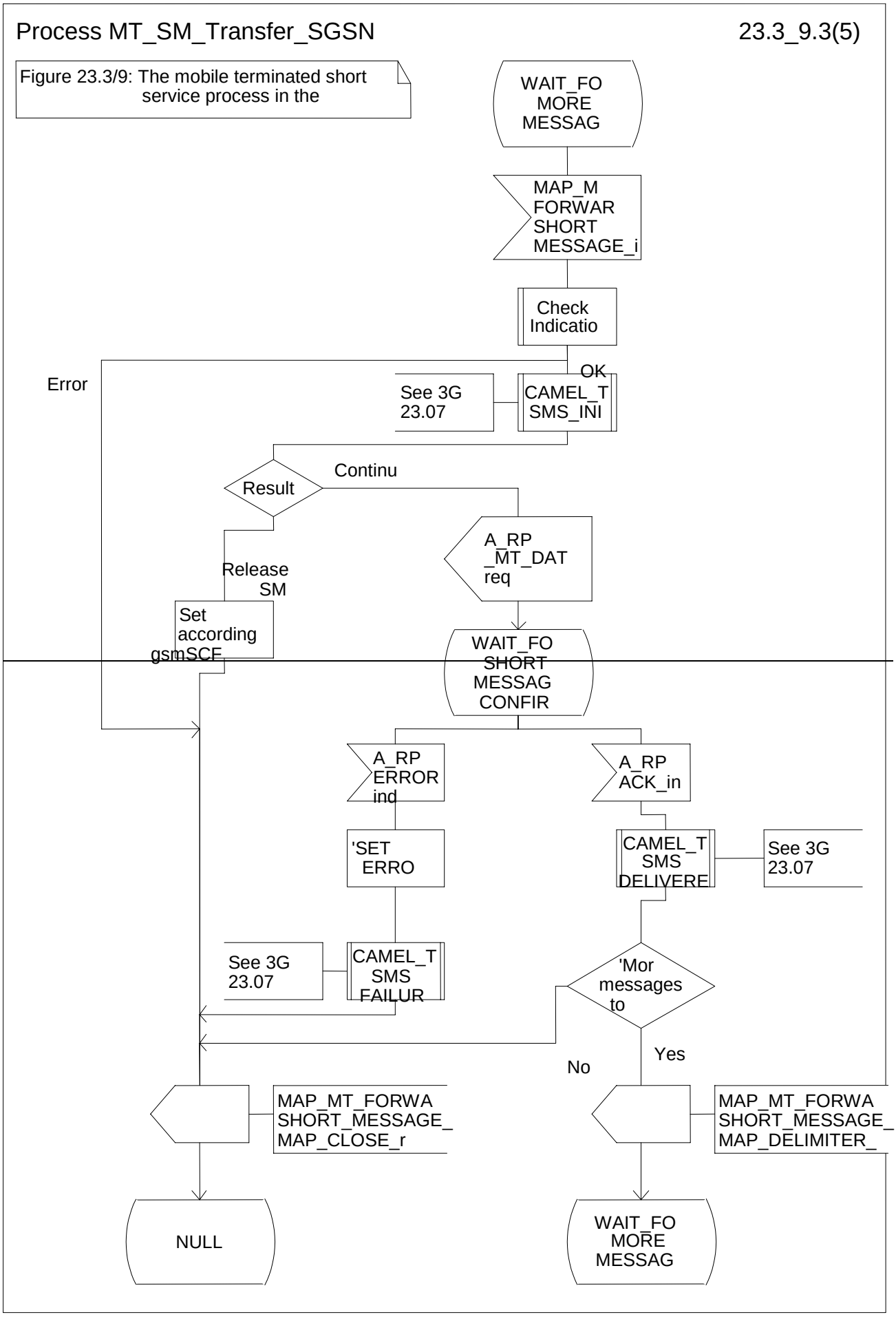


Figure 23.3/9 (sheet 2 of 4~~5~~): Process~~dure~~ MT_SM_~~Transfer_~~SGSN


Process MT_SM_Transfer_SGSN
23.3_9.3(5)
Figure 23.3/9: The mobile terminated short service process in the
WAIT_FO MORE MESSAG
MAP_M FORWAR SHORT MESSAGE_i
Check Indicatio
Error
OK
See 3G 23.07
CAMEL_T SMS_INI
Result
Continu
Release SM
A_RP _MT_DAT req
Set according gsmSCF
WAIT_FO SHORT MESSAG CONFIR
A_RP ERROR ind
A_RP ACK_in
'SET ERRO
CAMEL_T SMS DELIVERE
See 3G 23.07
See 3G 23.07
CAMEL_T SMS FAILUR
'Mor messages to
No
Yes
MAP_MT_FORWA SHORT_MESSAGE_ MAP_CLOSE_r
MAP_MT_FORWA SHORT_MESSAGE_ MAP_DELIMITER_
NULL
WAIT_FO MORE MESSAG

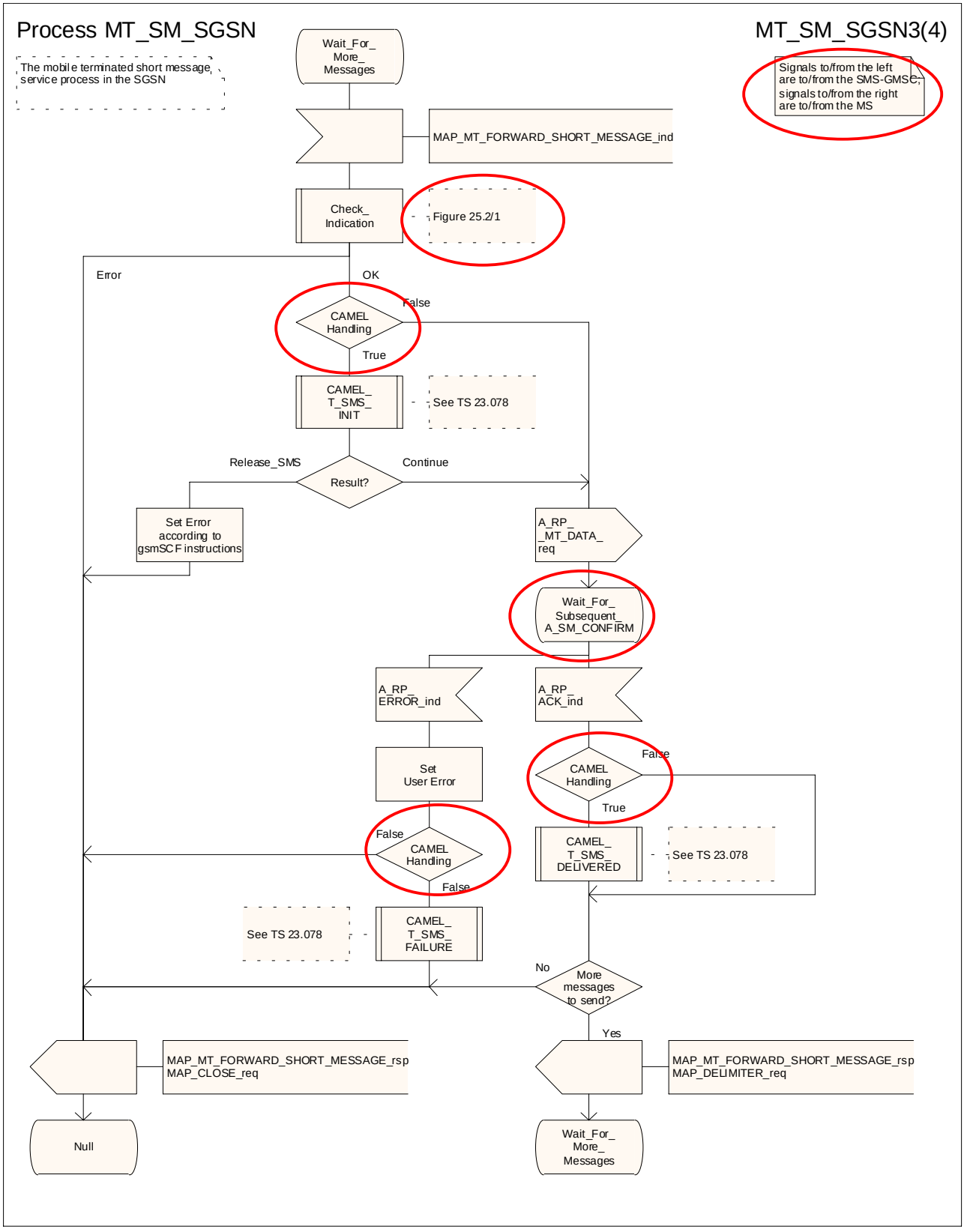
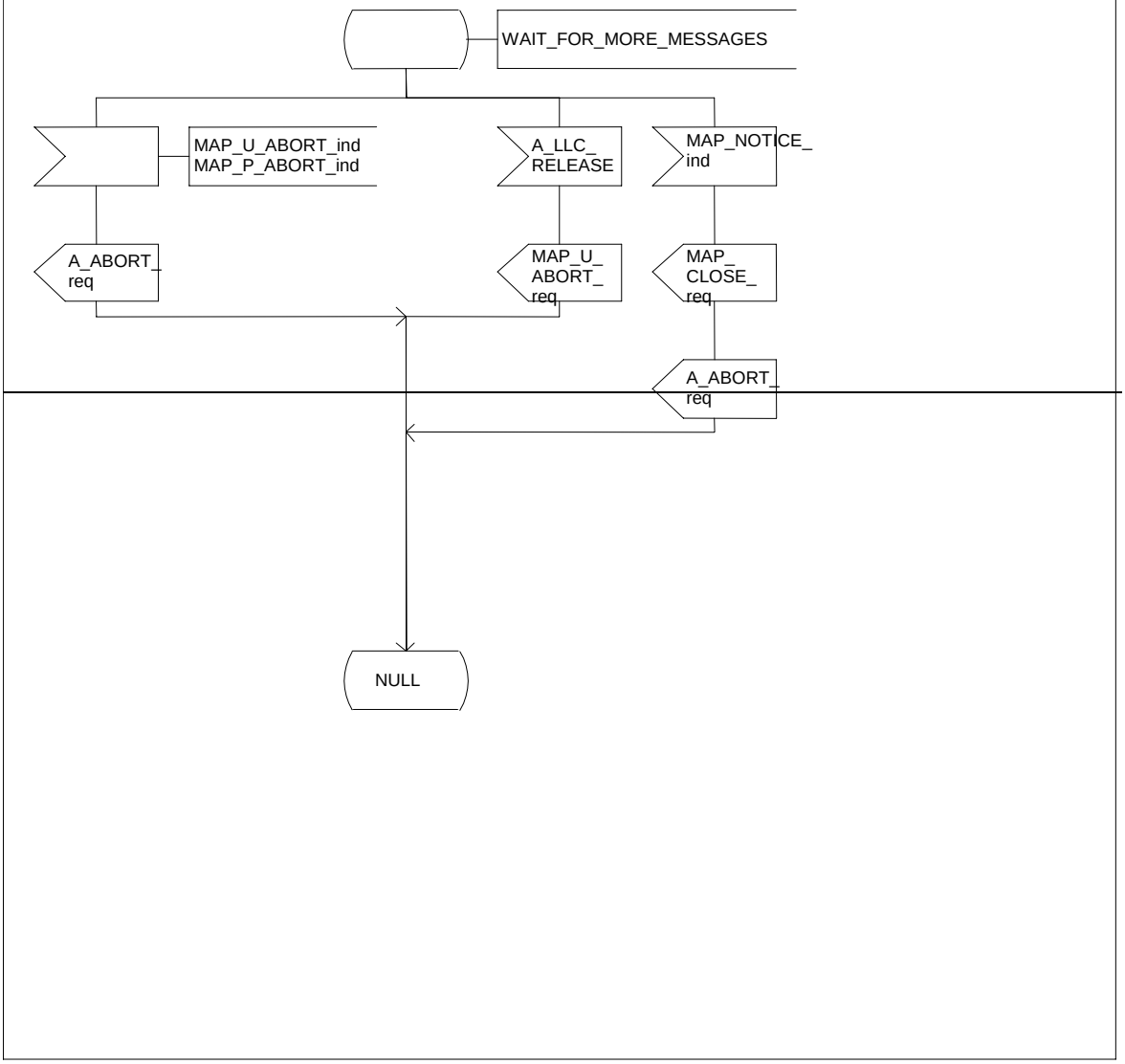


Figure 23.3/9 (sheet 3 of 45): Processdure MT_SM_Transfer_SGSN

Process MT_SM_Transfer_SGSN 23.3_9.4(5)

Figure 23.3/9: The mobile terminated short message service process in the SGSN



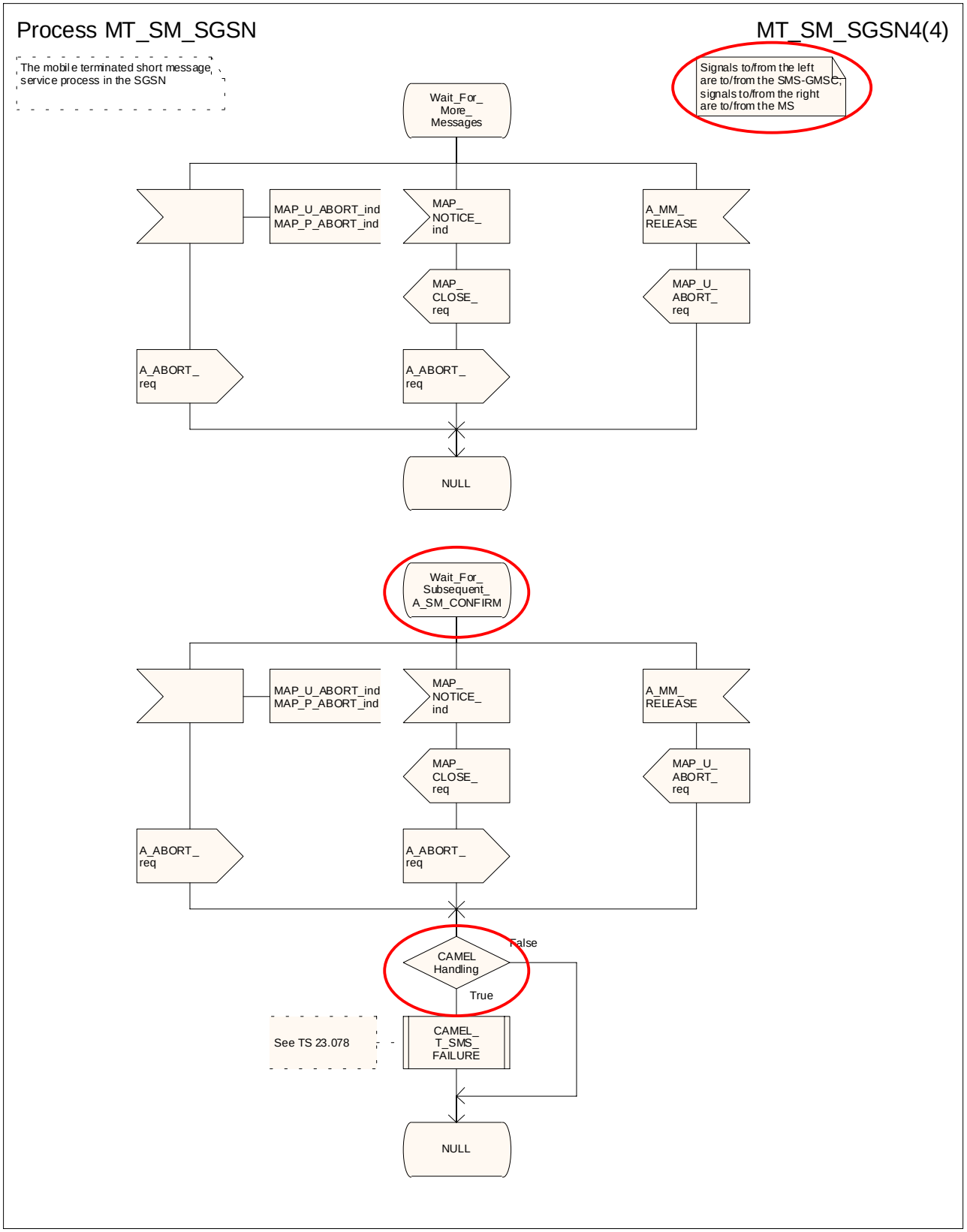
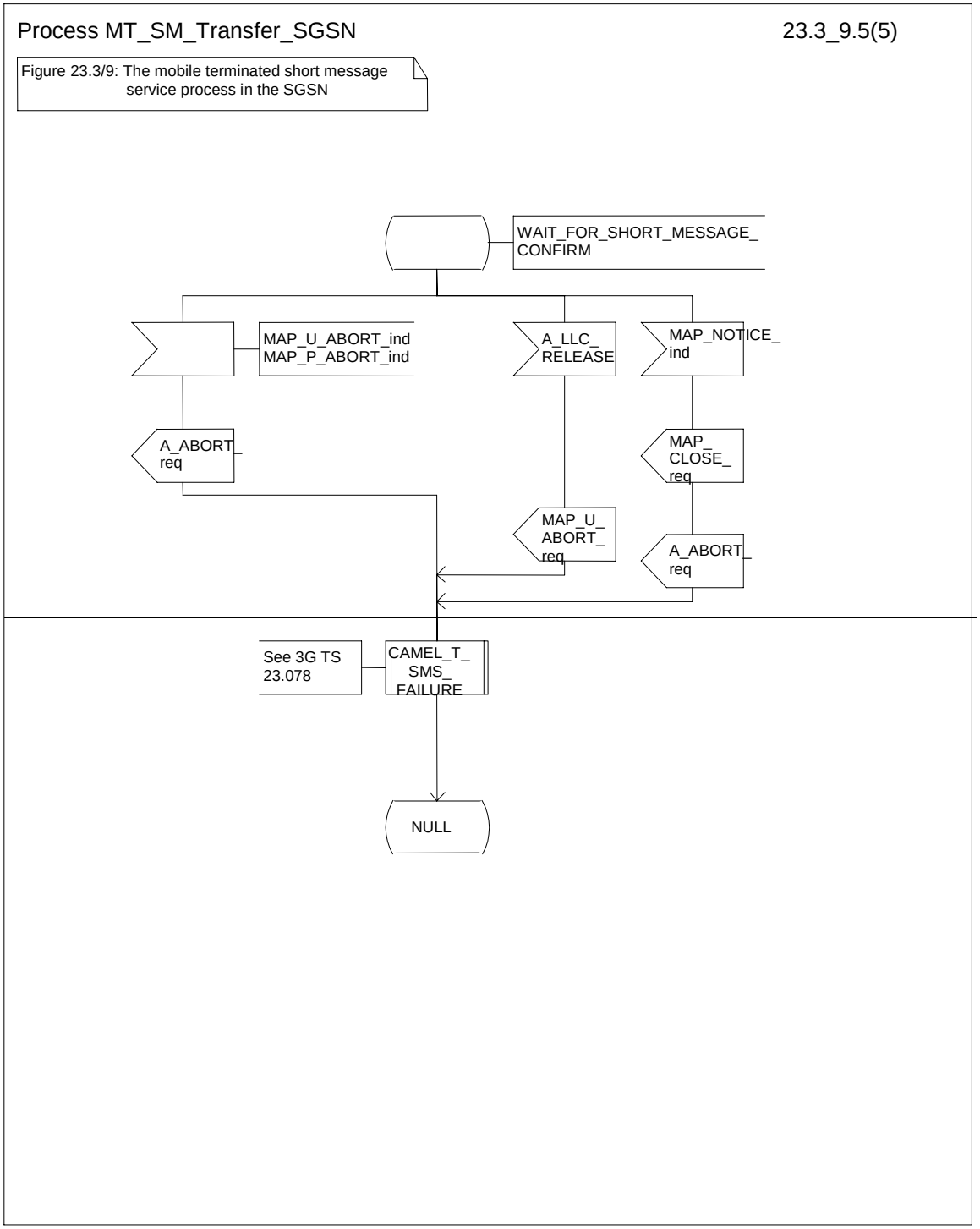
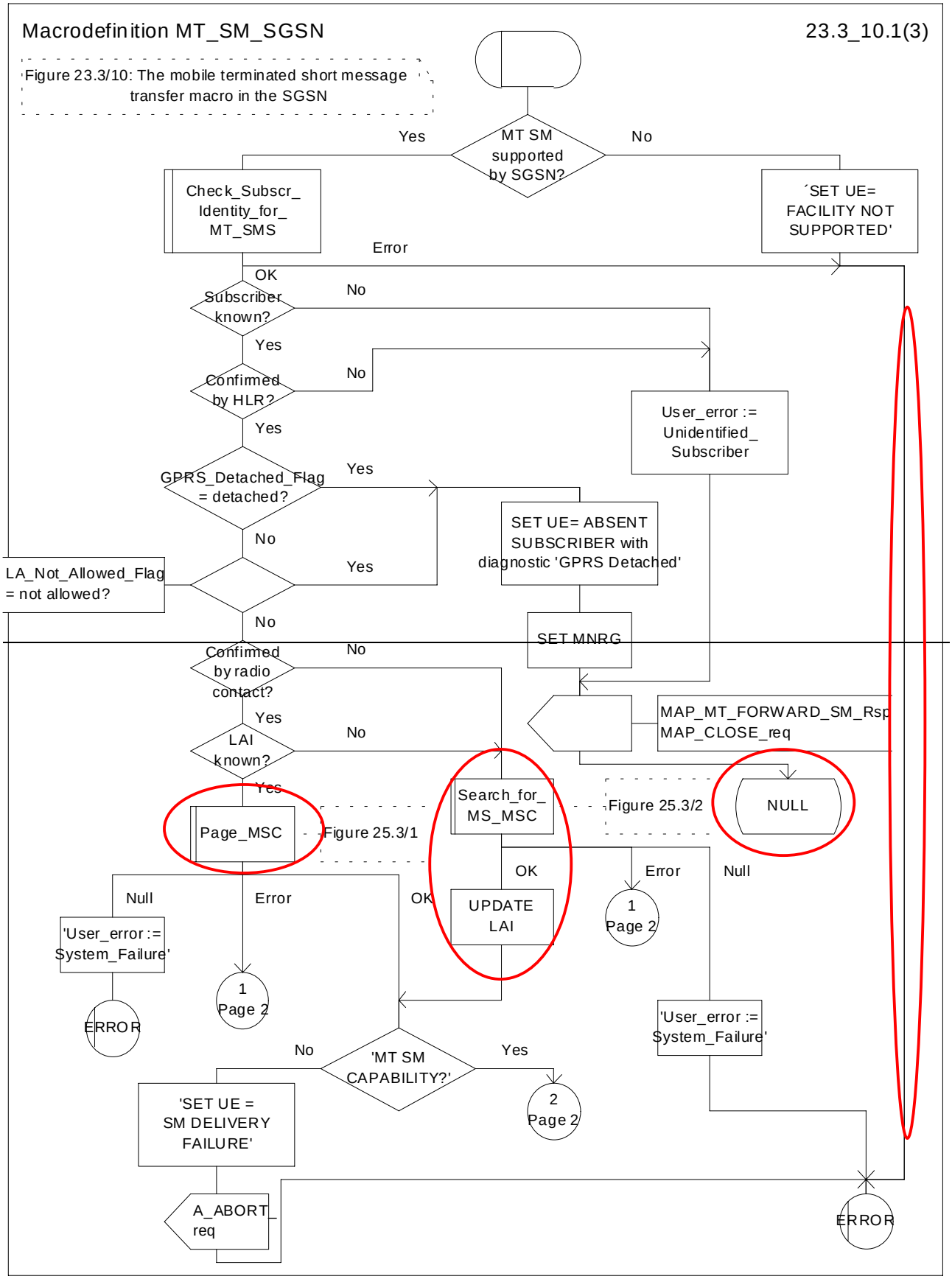


Figure 23.3/9 (sheet 4 of ~~4~~5): Process~~dure~~ MT_SM_~~Transfer_~~SGSN



~~Figure 23.3/9 (sheet 5 of 5): Procedure MT_SM_Transfer_SGSN~~

CR editor's note: sheets 4 & 5 of the existing SDL have been combined to form sheet 4 of the new SDL


Macrodefinition MT_SM_SGSN
23.3_10.1(3)
Figure 23.3/10: The mobile terminated short message transfer macro in the SGSN
MT SM supported by SGSN?
Yes
No
Check_Subscr_ Identity_for_ MT_SMS
´SET UE= FACILITY NOT SUPPORTED'
Error
OK
Subscriber known?
No
Yes
Confirmed by HLR?
No
Yes
User_error := Unidentified_ Subscriber
GPRS_Detached_Flag = detached?
Yes
No
SET UE= ABSENT SUBSCRIBER with diagnostic 'GPRS Detached'
LA_Not_Allowed_Flag = not allowed?
Yes
No
SET MNRG
Confirmed by radio contact?
No
Yes
MAP_MT_FORWARD_SM_Rsp
MAP_CLOSE_req
LAI known?
No
Yes
Search_for_ MS_MSC
Figure 25.3/2
NULL
Page_MSC
Figure 25.3/1
OK
Error
Null
Null
Error
OK
UPDATE LAI
1 Page 2
'User_error := System_Failure'
1 Page 2
ERROR
'User_error := System_Failure'
No
'MT SM CAPABILITY?'
Yes
2 Page 2
'SET UE = SM DELIVERY FAILURE'
A_ABORT_ req
ERROR

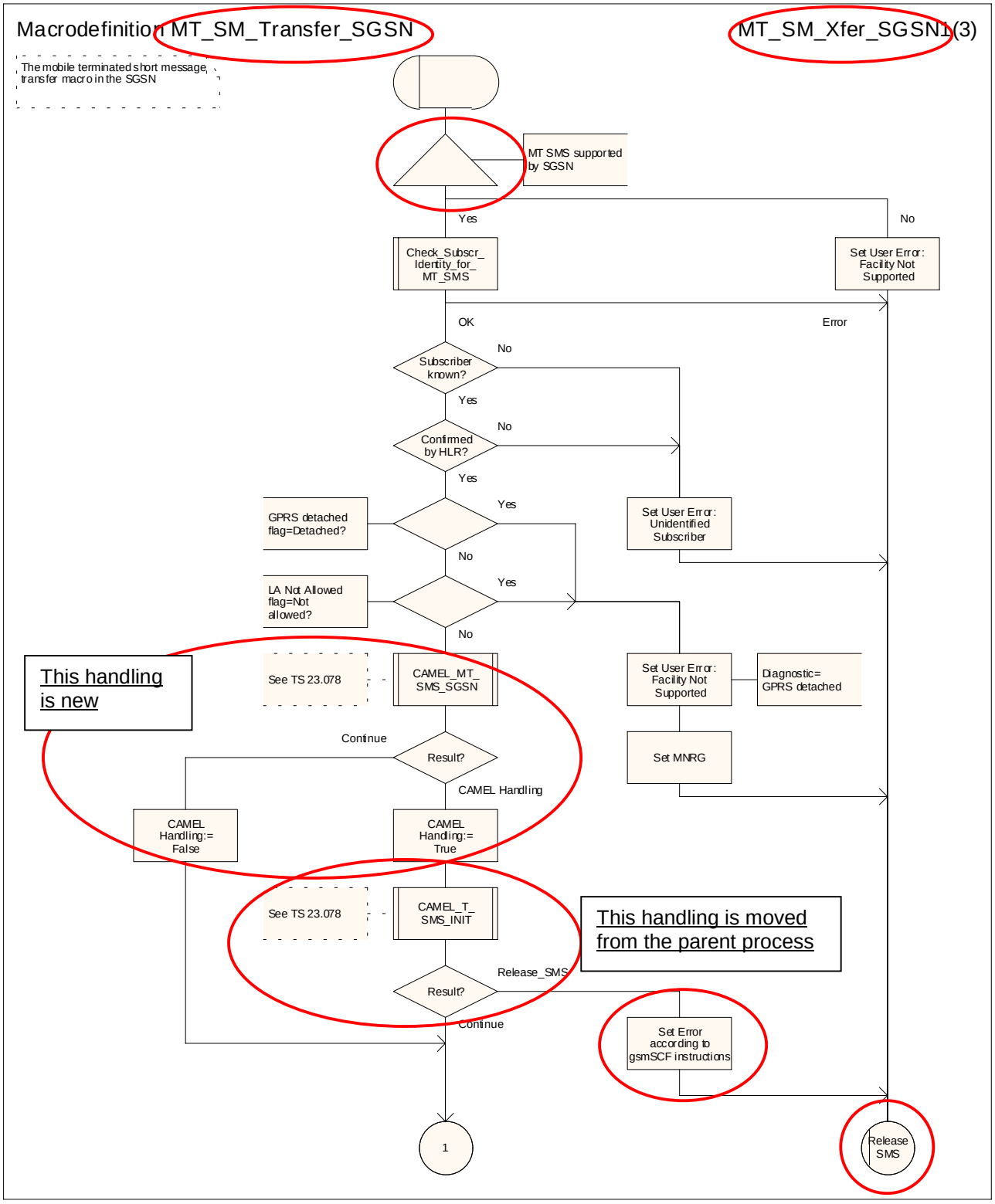
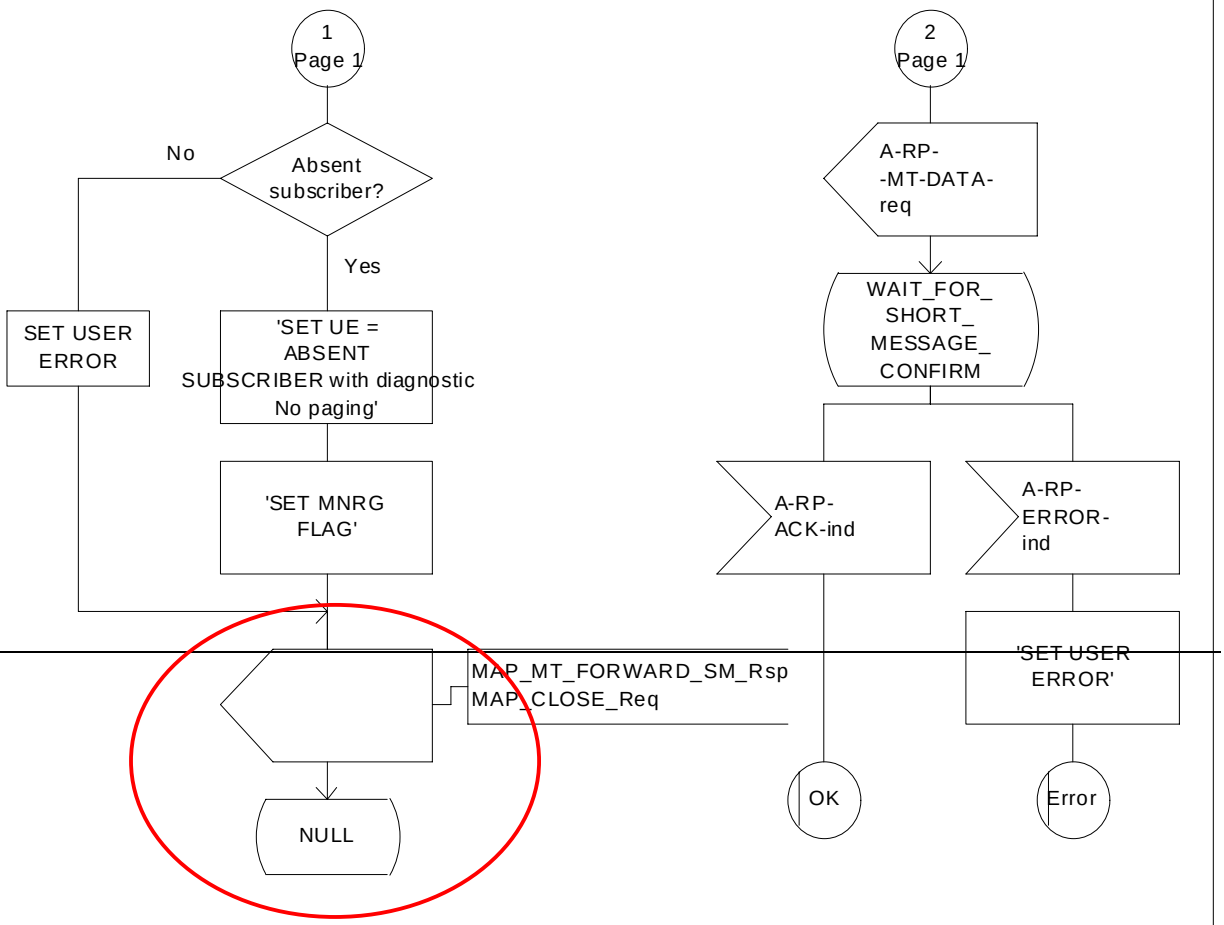


Figure 23.3/10 (sheet 1 of 3): Macro MT_SM_Transfer_SGSN

Macrodefinition MT_SM_SGSN 23.3_10.2(3)

Figure 23.3/10: The mobile terminated short message transfer macro in the SGSN



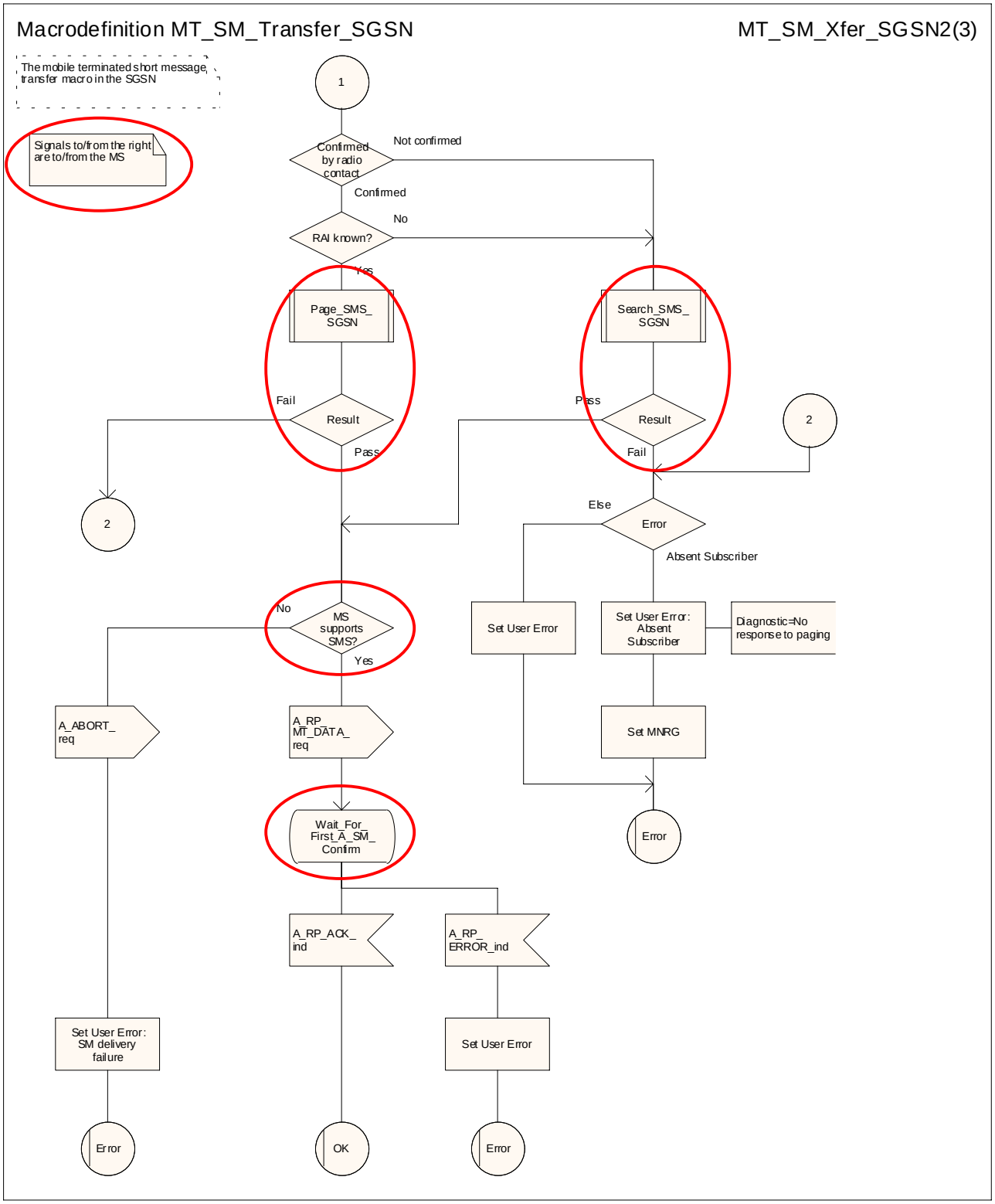
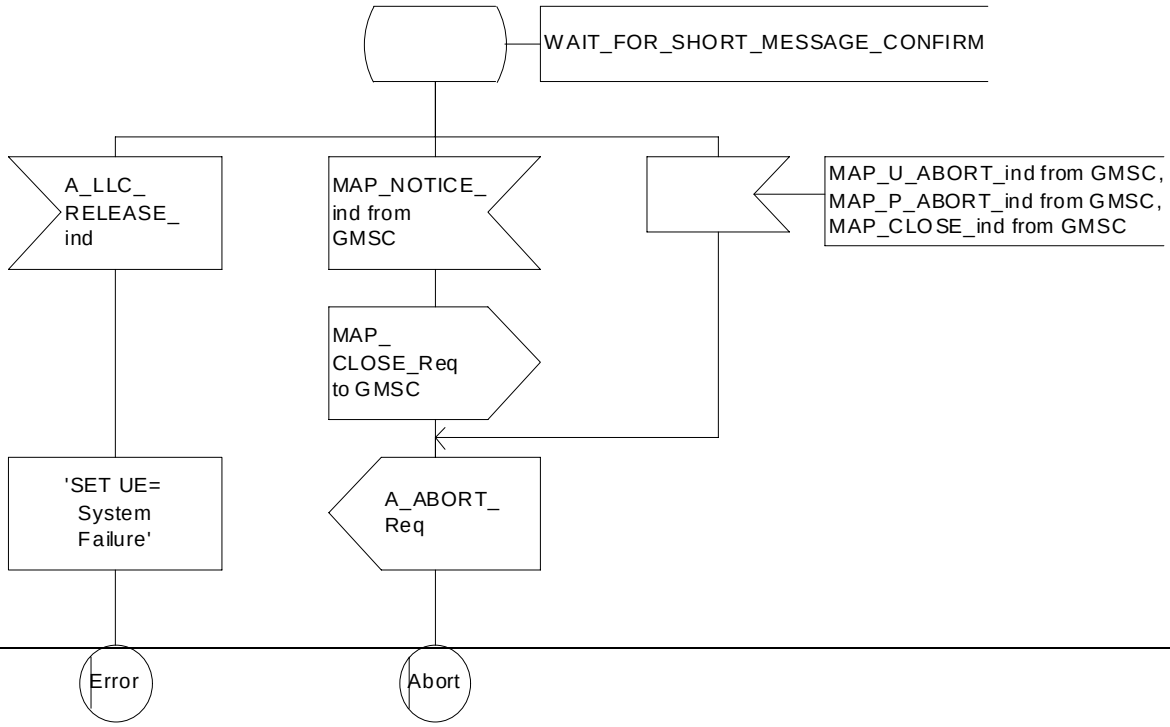


Figure 23.3/10 (sheet 2 of 3): Macro MT_SM_Transfer_SGSN

Macrodefinition MT_SM_SGSN 23.3_10.3(3)

Figure 23.3/10: The mobile terminated short message transfer macro in the SGSN



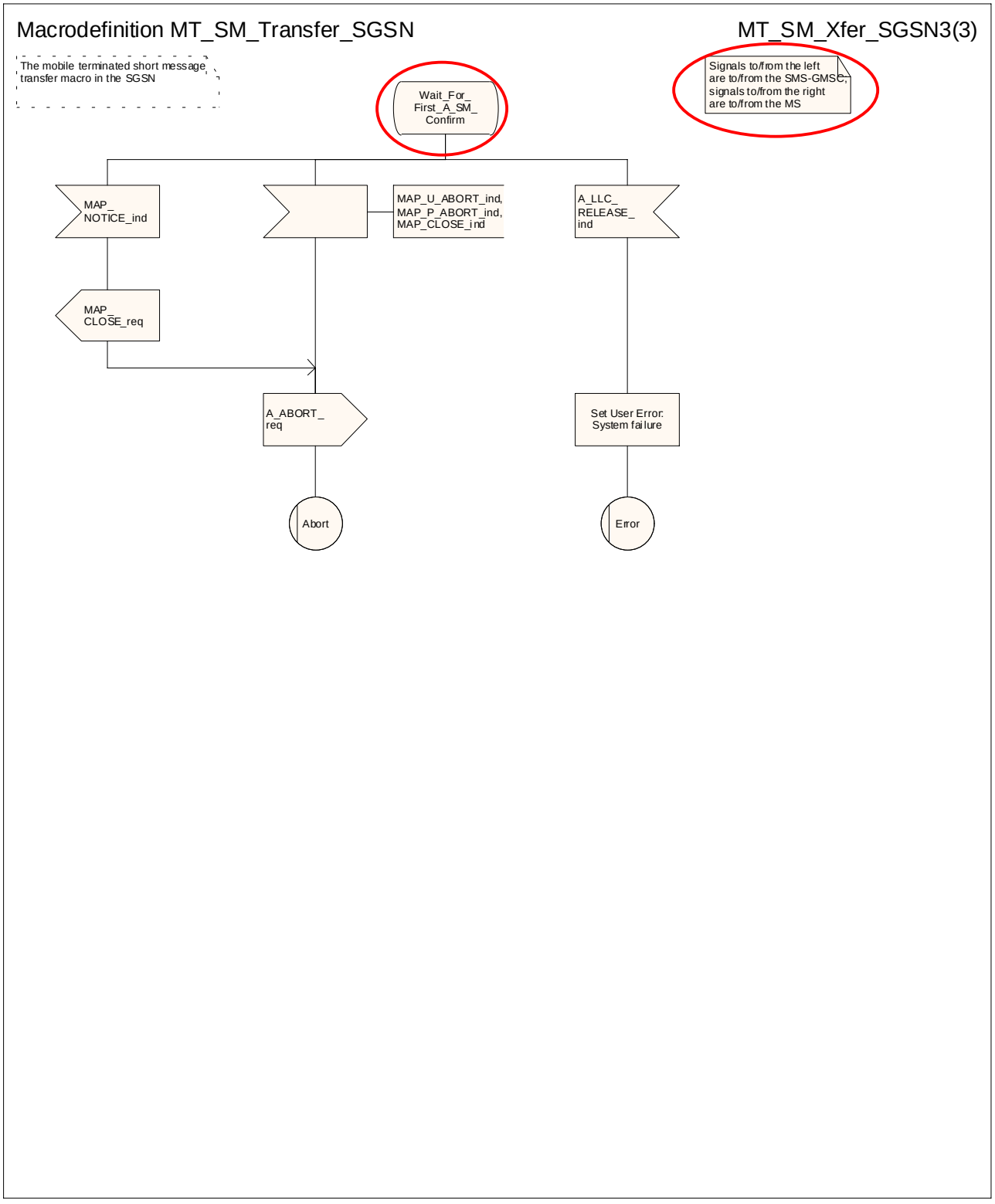


Figure 23.3/10 (sheet 3 of 3): Macro MT_SM_Transfer_SGSN

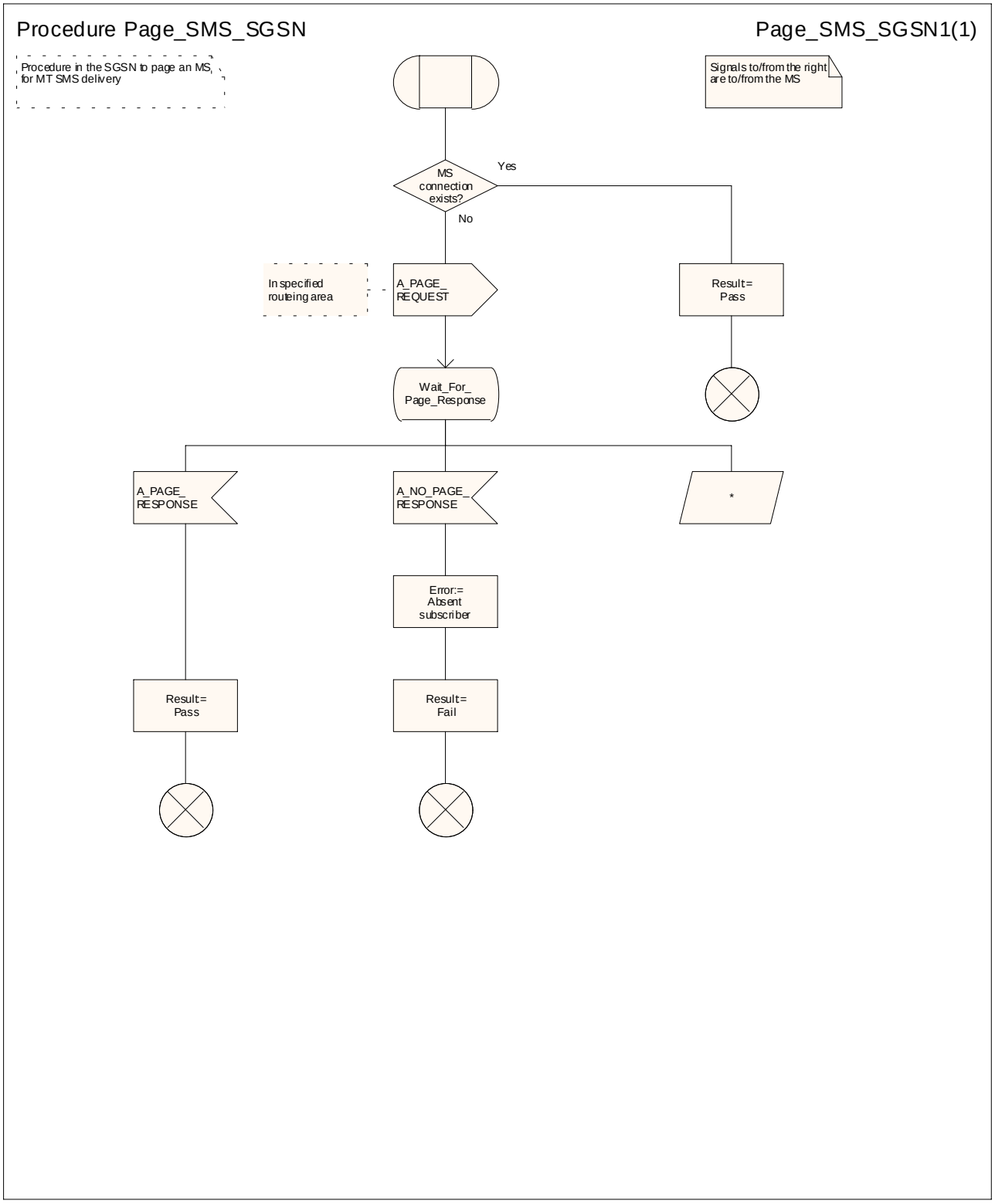


Figure 23.3/10a (sheet 1 of 1): Procedure Page_SMS_SGSN

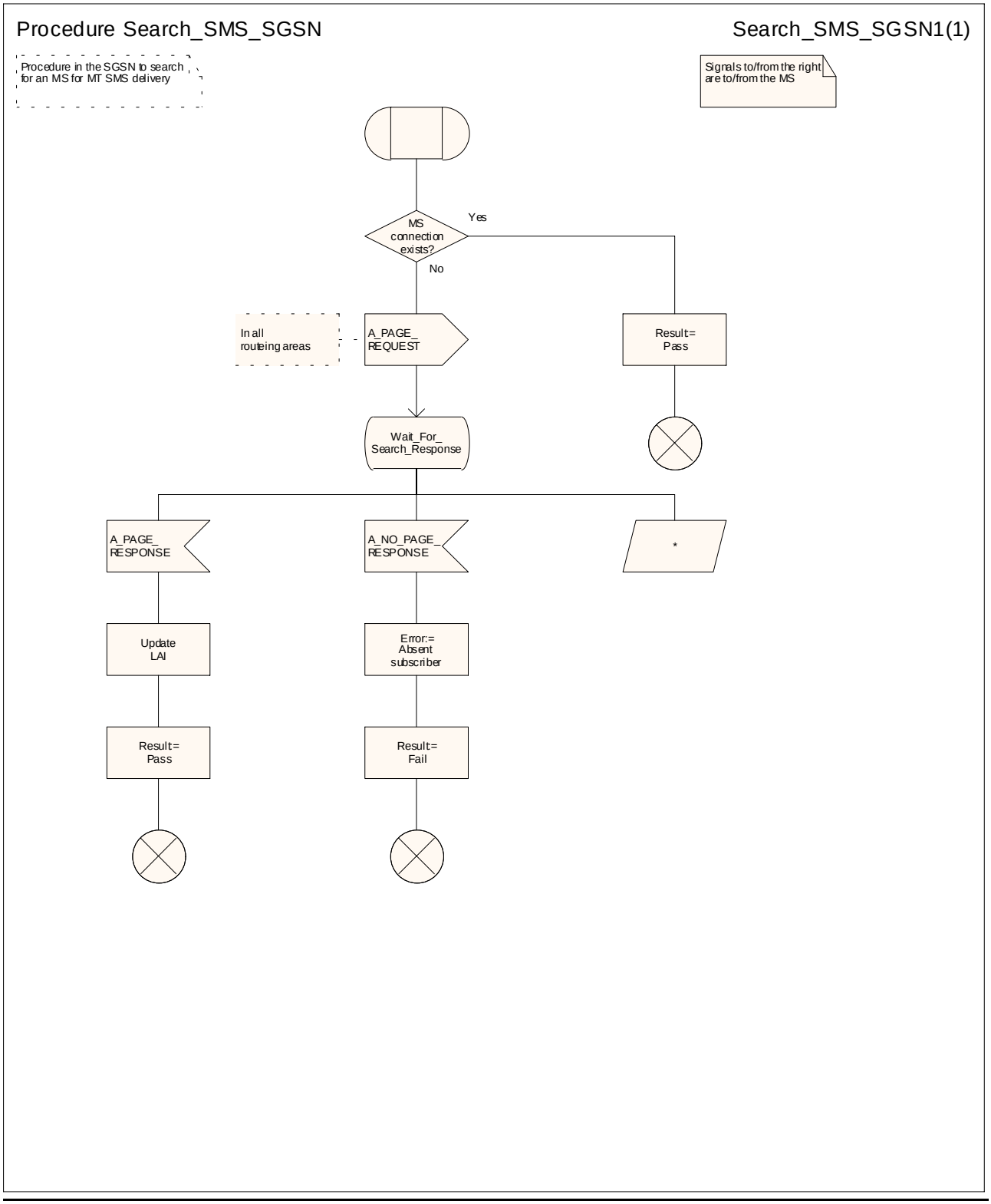


Figure 23.3/10b (sheet 1 of 1): Procedure Search_SMS_SGSN

****** End of document ******

3GPP TSG CN WG4 Meeting #16 **N4-021194**
Miami, USA, 23rd – 27th September 2002

CR-Form-v7

CHANGE REQUEST

⌘ **29.002** **CR** **490** ⌘ **rev** **-** ⌘ Current version: **5.3.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Clarification of the use of Requested CAMEL Subscription Info parameters
Source:	⌘	CN4
Work item code:	⌘	CAMEL4
Date:	⌘	17/09/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In CAMEL Phase 4 there has been introduced new CSIs which can be modified, because of that there has been defined a new optional parameter Additional Requested CAMEL Subscription Info containing the new CSIs. However for the Any Time Modification operation the old parameter Requested CAMEL Subscription Info is mandatory. At the moment there is no instructions what to do with the old parameter in case the new parameter is used.
Summary of change:	⌘	It is proposed that the receiving entity shall discard the old parameter if the new parameter is present.
Consequences if not approved:	⌘	The use of Requested CAMEL Subscription Info parameters is not defined, which may cause severe interoperability problems.

Clauses affected:	⌘	17.7.1

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments: ⌘

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

17.7 MAP constants and data types

17.7.1 Mobile Service data types

….

```
ModificationRequestFor-CSI ::= SEQUENCE {
     requestedCamel-SubscriptionInfo     [0]  RequestedCAMEL-SubscriptionInfo,
     modifyNotificationToCSE             [1]  ModificationInstruction      OPTIONAL,
     modifyCSI-State                     [2]  ModificationInstruction      OPTIONAL,
     extensionContainer                  [3]  ExtensionContainer           OPTIONAL,
     ...,
     additionalRequestedCAMEL-SubscriptionInfo
                                         [4] AdditionalRequestedCAMEL-SubscriptionInfo
                                                                           OPTIONAL }
-- requestedCamel-SubscriptionInfo shall be discarded if
-- additionalRequestedCAMEL-SubscriptionInfo is received
```

3GPP TSG-CN WG2 Meeting #26 **Tdoc N2-020858**
Miami, USA, 23rd - 27th September 2002

3GPP TSG-CN WG4 Meeting #16 **Tdoc N4-021252**
Miami, USA, 23rd - 27th September 2002

CHANGE REQUEST

⌘ **29.002** **CR** **495** ⌘ **rev** ⌘ Current version: **5.3.0** ⌘

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction to RCH – adding O-CSI trigger criteria			
Source:	⌘	CN4			
Work item code:	⌘	CAMEL4	***Date:*** ⌘	18/09/2002	
Category:	⌘	F	***Release:*** ⌘	Rel-5	
		Use one of the following categories:		*Use one of the following releases:*	
		F *(correction)*		*2*	*(GSM Phase 2)*
		A *(corresponds to a correction in an earlier release)*		*R96*	*(Release 1996)*
		B *(addition of feature),*		*R97*	*(Release 1997)*
		C *(functional modification of feature)*		*R98*	*(Release 1998)*
		D *(editorial modification)*		*R99*	*(Release 1999)*
				Rel-4	*(Release 4)*
				Rel-5	*(Release 5)*
				Rel-6	*(Release 6)*

Reason for change:	⌘	The specification of the Resume Call Handling (RCH) Argument is incomplete. It does not contain the O-CSI trigger criteria. In CAMEL Phase 2, the trigger criteria of O-CSI are checked in the VMSC, prior to sending RCH to the GMSC. For that reason, there is in GSM R97 no need to include the O-CSI trigger criteria in RCH. However, in CAMEL Phase 3, O-CSI may contain trigger criteria for DP Route Select Failure. These criteria can not be checked by the VMSC prior to sending RCH to the GMSC. For that reason, RCH shall include the O-CSI trigger criteria. The VMSC needs to send only the trigger criteria associated with DP Route Select Failure in RCH; the trigger criteria associated with DP Collected Info need not be sent in RCH.
Summary of change:	⌘	Add "o-BcsmCamelTDPCriteriaList" to RCH Argument.
Consequences if not approved:	⌘	CAMEL Service triggering at DP Route Select Failure in combination with ORLCF will not work.

Clauses affected:	⌘	17.7.3

Y	N

Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

****** First Modification ******

17.7.3 Call handling data types

```
MAP-CH-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-CH-DataTypes (13) version8 (8)}

DEFINITIONS

IMPLICIT TAGS

::=

BEGIN
```

< unmodified ASN.1 syntax >

```
ResumeCallHandlingArg ::= SEQUENCE {
    callReferenceNumber                 [0] CallReferenceNumber           OPTIONAL,
    basicServiceGroup                   [1] Ext-BasicServiceCode          OPTIONAL,
    forwardingData                      [2] ForwardingData                OPTIONAL,
    imsi                                [3] IMSI                          OPTIONAL,
    cug-CheckInfo                       [4] CUG-CheckInfo                 OPTIONAL,
    o-CSI                               [5] O-CSI                         OPTIONAL,
    extensionContainer                  [7] ExtensionContainer            OPTIONAL,
    ccbs-Possible                       [8]  NULL                         OPTIONAL,
    msisdn                              [9]  ISDN-AddressString           OPTIONAL,
    uu-Data                             [10] UU-Data                      OPTIONAL,
    allInformationSent                  [11] NULL                         OPTIONAL,
    ...,
    d-csi                               [12] D-CSI                        OPTIONAL,
    o-BcsmCamelTDPCriteriaList          [13] O-BcsmCamelTDPCriteriaList   OPTIONAL}
```

< unmodified ASN.1 syntax >

****** End of Document ******

3GPP TSG CN WG4 Meeting #16 ***N4-021264***
Miami, USA, 23rd – 27th September 2002

3GPP TSG-CN WG2 Meeting #26 ***N2-020903***
Miami, USA, 23rd - 27th September 2002.

CR-Form-v7

CHANGE REQUEST

⌘ **29.002** **CR** **496** ⌘ **rev** **-** ⌘ Current version: **5.3.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Additional MM-Code for MG-CSI
Source:	⌘	CN4
Work item code:	⌘	CAMEL4
Date:	⌘	24/09/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In the stage 2, the mobility management for GPRS subscriber has been refined to indicate the update from the new SGSN and the disconnect by detach (old SGSN) in the case of inter-SGSN routeing area update.
Summary of change:	⌘	Align with the stage 2 for the MM-Code data type in the stage 3.
Consequences if not approved:	⌘	Mis-alignment between stage 2 and stage 3.

Clauses affected:	⌘	17.7.1

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	23.078-457
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

17.7 MAP constants and data types

17.7.1 Mobile Service data types

....
....
....

```
M-CSI ::= SEQUENCE {
     mobilityTriggers                    MobilityTriggers,
     serviceKey                          ServiceKey,
     gsmSCF-Address                      [0]  ISDN-AddressString,
     extensionContainer                  [1]  ExtensionContainer          OPTIONAL,
     notificationToCSE                   [2] NULL                         OPTIONAL,
     csi-Active                          [3] NULL                         OPTIONAL,
     ...}
--   notificationToCSE and csi-Active shall not be present when M-CSI is sent to VLR.
--   They may only be included in ATSI/ATM ack/NSDC message.
```

```
MG-CSI ::= SEQUENCE {
     mobilityTriggers                    MobilityTriggers,
     serviceKey                          ServiceKey,
     gsmSCF-Address                      [0]  ISDN-AddressString,
     extensionContainer                  [1]  ExtensionContainer          OPTIONAL,
     notificationToCSE                   [2] NULL                         OPTIONAL,
     csi-Active                          [3] NULL                         OPTIONAL,
     ...}
--   notificationToCSE and csi-Active shall not be present when MG-CSI is sent to SGSN.
--   They may only be included in ATSI/ATM ack/NSDC message.
```

```
MobilityTriggers  ::= SEQUENCE SIZE (1..maxNumOfMobilityTriggers) OF
     MM-Code
```

```
maxNumOfMobilityTriggers INTEGER ::= 10
```

```
MM-Code ::= OCTET STRING (SIZE (1))
--   This type is used to indicate a Mobility Management event.
--   Actions for the following MM-Code values are defined in CAMEL Phase 4:
--
--   CS domain MM events:
--   Location-update-in-same-VLR         MM-Code ::= '00000000'B
--   Location-update-to-other-VLR        MM-Code ::= '00000001'B
--   IMSI-Attach                         MM-Code ::= '00000010'B
--   MS-initiated-IMSI-Detach            MM-Code ::= '00000011'B
--   Network-initiated-IMSI-Detach       MM-Code ::= '00000100'B
--
--   PS domain MM events:
--   Routeing-Area-update-in-same-SGSN   MM-Code ::= '10000000'B
--   Routeing-Area-update-to-other-SGSN-update-from-new-SGSN
--                                       MM-Code ::= '10000001'B
--   Routeing-Area-update-to-other-SGSN-disconnect-by-detach
--                                       MM-Code ::= '10000010'B
--   GPRS-Attach                         MM-Code ::= '10000011'B
--   MS-initiated-GPRS-Detach            MM-Code ::= '10000100011'B
--   Network-initiated-GPRS-Detach       MM-Code ::= '10000101'B
--   Network-initiated-transfer-to-MS-not-reachable-for-paging
--                                       MM-Code ::= '10000101'B
--
--   If the MSC receives any other MM-code than the ones listed above for the
--   CS domain, then the MSC shall ignore that MM-code.
--   If the SGSN receives any other MM-code than the ones listed above for the
--   PS domain, then the SGSN shall ignore that MM-code.
```

3GPP TSG CN WG4 Meeting #16 ***N4-021296***
Miami Beach, Florida, USA, 23rd – 27th September 2002

3GPP TSG CN WG2 Meeting #26 ***N2-020927***
Miami Beach, Florida, USA, 23rd – 27th September 2002 N2-020907rev

CR-Form-v7

CHANGE REQUEST

⌘ **29.002** **CR** **497** ⌘ **rev** **1** ⌘ Current version: **5.3.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Additional handling of partial implementations of CAMEL phase 4
Source:	⌘	CN4
Work item code:	⌘	CAMEL4
Date:	⌘	25/09/2002
Category:	⌘	**D**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Alignment between stage 2 and stage 3 parameter names. Parameter are not named according to 30.002.
Summary of change:	⌘	Rename the "ica-new-party" bit. Correction of parameter names according to 30.002.
Consequences if not approved:	⌘	Misalignment between stage 2 and stage 3 parameter names.

Clauses affected:	⌘	17.7.1 Mobile Service data types

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘

— First modified section —

17.7 MAP constants and data types

17.7.1 Mobile Service data types

```
MAP-MS-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-MS-DataTypes (11) version8 (8)}

DEFINITIONS

IMPLICIT TAGS

::=

BEGIN

...
```

```
SupportedCamelPhases ::= BIT STRING {
     phase1 (0),
     phase2 (1),
     phase3 (2),
     phase4 (3)} (SIZE (1..16))
-- A node shall mark in the BIT STRING all CAMEL Phases it supports.
-- Other values than listed above shall be discarded.
```

```
OfferedCamel4CSIs ::= BIT STRING {
     o-csi                              (0),
     d-csi                              (1),
     vt-csi                             (2),
     t-csi                              (3),
     mt-sms-csi                         (4),
     mg-csi                             (5),
     psi-enhancements                   (6)
} (SIZE (7..16))
-- A node supporting Camel phase 4 shall mark in the BIT STRING all Camel4 CSIs
-- it offers.
-- Other values than listed above shall be discarded.
```

```
OfferedCamel4Functionalities ::= BIT STRING {
     initiateCallAttempt~~ica-new-party~~    (0),
     split~~-L~~leg                              (1),
     move~~-l~~Leg                          (2),
     disconnect~~-l~~Leg                    (3),
     entity~~-r~~Released                   (4),
     dfc-~~w~~With~~-A~~argument            (5),
     play~~-T~~tone                              (6),
     dtmf-~~m~~Mid~~-c~~Call                (7),
     charging~~-i~~Indicator                (8),
     alertingDP~~-dp~~                      (9),
     location~~-a~~At~~-a~~Alerting         (10),
     change~~-o~~Of~~-p~~PositionDP~~-dp~~  (11),
     or-~~i~~Interactions                   (12),
     warning~~-t~~Tone~~-e~~Enhancements    (13),
     cf-~~e~~Enhancements                   (14)
} (SIZE (15..32))
-- A node supporting Camel phase 4 shall mark in the BIT STRING all Camel4
-- functionalities it offers.
-- Other values than listed above shall be discarded.
```

```
...

END
```

— END —

3GPP TSG-CN WG4 Meeting #17 **N4-021443**
Bangkok, Thailand, 11th - 15th November 2002

CHANGE REQUEST

⌘ **29.002** **CR** **513** ⌘ **rev** ⌘ Current version: **5.3.0** ⌘

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Reference to TS 23.078 in TS 29.002 regarding handling of VMSC address is missing
Source:	⌘	CN4
Work item code:	⌘	CAMEL4
Date:	⌘	01/11/2002
Category:	⌘	F
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Subclause 10.1.3 specifies the parameters that may be included in SRI-Res. One of the parameters is “VMSC Address”. The description in that section refers to 3GPP TS 23.079 for the conditions of presence of that parameter. However, VMSC Address is also defined in 3GPP TS 23.078. Hence, there shall also be a reference to 3GPP TS 23.078 for the conditions of presence of VMSC Address in SRI-Res. For the parameter “Alerting Pattern”, there should also be a reference to 3GPP TS 23.078.
Summary of change:	⌘	- Add a reference to 3GPP TS 23.078 in the description of VMSC Address; - Add a reference to 3GPP TS 23.078 in the description of Alerting Pattern; - Change “IAM” into “ISUP IAM”; - Minor editorial correction.
Consequences if not approved:	⌘	- ambiguity for system designers, w.r.t. the implementation of VMSC Address and Alerting Pattern in MAP SRI; - incorrect implementation.

Clauses affected:	⌘	10.1.3

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments: ⌘	

*** *First Modification* ***

10.1 MAP_SEND_ROUTING_INFORMATION service

10.1.1 Definition

This service is used between the Gateway MSC and the HLR. The service is invoked by the Gateway MSC to perform the interrogation of the HLR in order to route a call towards the called MS.

This is a confirmed service using the primitives listed in table 10.1/1.

This service is also used between the GMSC and the NPLR and between the gsmSCF and the HLR.

10.1.2 Service primitives

Table 10.1/1: MAP_SEND_ROUTING_INFORMATION parameters

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
Interrogation Type	M	M(=)		
GMSC or gsmSCF Address	M	M(=)		
MSISDN	M	M(=)	C	C(=)
OR Interrogation	C	C(=)		
OR Capability	C	C(=)		
CUG Interlock	C	C(=)	C	C(=)
CUG Outgoing Access	C	C(=)	C	C(=)
Number of Forwarding	C	C(=)		
Network Signal Info	C	C(=)		
Supported CAMEL Phases	C	C(=)	C	C(=)
Suppress T-CSI	C	C(=)		
Offered CAMEL 4 CSIs	C	C(=)		
Suppression of Announcement	C	C(=)		
Call Reference Number	C	C(=)		
Forwarding Reason	C	C(=)		
Basic Service Group	C	C(=)		
Alerting Pattern	C	C(=)		
CCBS Call	C	C(=)		
Supported CCBS Phase	C	C(=)		
Additional Signal Info	C	C(=)		
IST Support Indicator	C	C(=)		
Pre-paging supported	C	C(=)		
Call Diversion Treatment Indicator	C	C(=)		
Long FTN Supported	C	C(=)		
Suppress VT-CSI	C	C(=)		
Suppress Incoming Call Barring	C	C(=)		
gsmSCF Initiated Call	C	C(=)		
IMSI			C	C(=)
MSRN			C	C(=)
Forwarding Data			C	C(=)
Forwarding Interrogation Required			C	C(=)
VMSC address			C	C(=)
GMSC Camel Subscription Info			C	C(=)
Location Information			C	C(=)
Subscriber State			C	C(=)
Basic Service Code			C	C(=)
CUG Subscription Flag			C	C(=)
North American Equal Access preferred Carrier Id			U	C(=)
User error			C	C(=)
SS-List			U	C(=)
CCBS Target			C	C(=)
Keep CCBS Call Indicator			C	C(=)
IST Alert Timer			C	C(=)

Parameter name	Request	Indication	Response	Confirm
Number Portability Status			U	C(=)
Supported CAMEL Phases in VMSC			C	
Offered CAMEL 4 CSIs in VMSC			C	C(=)
Provider error				O

10.1.3 Parameter use

See clause 7.6 for a definition of the parameters used in addition to the following. Note that:

- a conditional parameter whose use is defined only in 3GPP TS 23.078 shall be absent if the sending entity does not support CAMEL;
- a conditional parameter whose use is defined only in 3GPP TS 23.079 [99] shall be absent if the sending entity does not support optimal routeing;
- a conditional parameter whose use is defined only in 3GPP TS 23.078 & 3GPP TS 23.079 [99] shall be absent if the sending entity supports neither CAMEL nor optimal routeing.

Interrogation Type

See 3GPP TS 23.079 [99] for the use of this parameter.

GMSC or gsmSCF address

The E.164 address of the GMSC or the gsmSCF. This parameter contains the ~~a~~ gsmSCF address if the gsmSCF iniated call parameter is present, otherwise it is the GMSC address.

MSISDN

This is the Mobile Subscriber ISDN number assigned to the called subscriber. In the Request & Indication it is the number received by the GMSC in the ISUP IAM. If the call is to be forwarded and the HLR supports determination of the redirecting number, the HLR inserts the basic MSISDN in the Response.

See 3GPP TS 23.066 [108] for the use of this parameter and the conditions for its presence in the response.

OR Interrogation

See 3GPP TS 23.079 [99] for the use of this parameter and the conditions for its presence.

OR Capability

See 3GPP TS 23.079 [99] for the use of this parameter and the conditions for its presence.

CUG Interlock

See 3GPP TS 23.018 [97] for the use of this parameter and the conditions for its presence.

CUG Outgoing Access

See 3GPP TS 23.018 [97] for the use of this parameter and the conditions for its presence.

Number of Forwarding

See 3GPP TS 23.018 [97] for the use of this parameter and the conditions for its presence.

Network Signal Info

See 3GPP TS 23.018 [97] for the conditions for the presence of the components of this parameter.

Supported CAMEL Phases

The use of this parameter and the requirements for its presence are specified in 3GPP TS 23.078.

T-CSI Suppression

The use of this parameter and the requirements for its presence are specified in 3GPP TS 23.078.

Offered CAMEL 4 CSIs

This parameter indicates the CAMEL phase 4 CSIs offered in the GMSC/VLR (see clause 7.6.3.36D).

Suppression Of Announcement

The use of this parameter and the requirements for its presence are specified in 3GPP TS 23.078.

Call Reference Number

The use of this parameter and the conditions for its presence are specified in 3GPP TS 23.078 [98] and 3GPP TS 23.079 [99].

Forwarding Reason

See 3GPP TS 23.079 [99] for the use of this parameter and the conditions for its presence.

Basic Service Group

See 3GPP TS 23.079 [99] for the use of this parameter and the conditions for its presence.

Alerting Pattern

See 3GPP TS 23.018 [97] and 3GPP TS 23.078 [98] for the use of this parameter and the conditions for its presence.

CCBS Call

See 3GPP TS 23.093 [107] for the use of this parameter and the conditions for its presence.

Supported CCBS Phase

This parameter indicates by its presence that CCBS is supported and the phase of CCBS which is supported.

Additional Signal Info

See 3GPP TS 23.081 [27] for the conditions for the presence of the components of this parameter.

IST Support Indicator

This parameter is used to indicate to the HLR that the GMSC supports basic IST functionality, that is, the GMSC is able to terminate the subscriber call activity that originated the IST Alert when it receives the IST Alert response indicating that the call(s) shall be terminated. If this parameter is not included in the Send Routing Information indication and the subscriber is marked as an IST subscriber, then the HLR may limit the service for the call (by barring the incoming call if it is not subject to forwarding, or suppressing Call Forwarding from the GMSC), or allow the call assuming the associated risk of not having the basic IST mechanism available.

This parameter can also indicate that the GMSC supports the IST Command, including the ability to terminate all calls being carried for the identified subscriber by using the IMSI as a key. If this additional capability is not included in the Send Routing Information indication and the subscriber is marked as an IST subscriber, then the HLR may limit the service for the subscriber (by barring the incoming calls if they are not subject to forwarding, or suppressing Call Forwarding from the GMSC), or allow the incoming calls assuming the associated risk of not having the IST Command mechanism available.

Pre-paging supported

See 3GPP TS 23.018 for the use of this parameter and the conditions for its presence.

Call Diversion Treatment Indicator

This parameter indicates whether or not call diversion is allowed.

IMSI

See 3GPP TS 23.018 [97] and 3GPP TS 23.066 [108] for the use of this parameter and the conditions for its presence.

MSRN

See 3GPP TS 23.018 [97], 3GPP TS 23.066 [108] and 3GPP TS 23.079 [99] for the use of this parameter and the conditions for its presence. If the NPLR returns only the MSISDN-number without Routeing Number to the GMSC, the MSISDN-number shall be returned as MSRN.

Forwarding Data

This parameter includes a number to define the forwarded-to destination, the forwarding reason and the forwarding options Notification to calling party and Redirecting presentation, and can include the forwarded-to subaddress. See 3GPP TS 23.018 [97] and 3GPP TS 23.079 [99] for the conditions for the presence of its components.

Forwarding Interrogation Required

See 3GPP TS 23.079 [99] for the use of this parameter and the conditions for its presence.

Long FTN Supported

This parameter indicates that the GMSC supports Long Forwarded-to Numbers.

Suppress VT-CSI

The use of this parameter and the requirements for its presence are specified in 3GPP TS 23.078.

Suppress Incoming Call Barring

The use of this parameter and the requirements for its presence are specified in 3GPP TS 23.078.

gsmSCF Initiated Call

The use of this parameter and the requirements for its presence are specified in 3GPP TS 23.078.

VMSC address

See 3GPP TS 23.079 [99] and 3GPP TS 23.078 [98] for the use of this parameter and the conditions for its presence.

GMSC CAMEL Subscription Info

The use of this parameter and the requirements for its presence are specified in 3GPP TS 23.078.

Location Information

The use of this parameter and the requirements for its presence are specified in 3GPP TS 23.078.

Subscriber State

The use of this parameter and the requirements for its presence are specified in 3GPP TS 23.078.

CUG Subscription Flag

The use of this parameter and the requirements for its presence are specified in 3GPP TS 23.078.

North American Equal Access preferred Carrier Id

This parameter is returned to indicate the preferred carrier identity to be used to set-up the call (i.e. forwarding the call or establishing the roaming leg).

SS-List

This parameter includes SS-codes and will be returned as an operator option. The HLR shall not send PLMN-specific SS-codes across PLMN boundaries. However if the GMSC receives PLMN-specific SS-codes from a foreign PLMN's HLR the GMSC may ignore it. If the GMSC attempts to process the PLMN- specific SS- codes, this may lead to unpredictable behaviour but the GMSC shall continue call processing.

Basic Service Code

The use of this parameter and the requirements for its presence are specified in 3GPP TS 23.078.

If the CAMEL service is not involved, this parameter includes the basic service code and will be returned as an operator option. The HLR shall not send a PLMN-specific Basic Service Code across PLMN boundaries. However if the GMSC

receives a PLMN-specific Basic Service Code from a foreign PLMN's HLR the GMSC may ignore it. If the GMSC attempts to process the PLMN specific Basic Service codes, this may lead to unpredictable behaviour but the GMSC shall continue call processing.

CCBS Target

See 3GPP TS 23.093 [107] for the use of this parameter and the conditions for its presence.

Keep CCBS Call Indicator

See 3GPP TS 23.093 [107] for the use of this parameter and the conditions for its presence.

IST Alert Timer

It includes the IST Alert timer value that must be used to inform the HLR about the call activities that the subscriber performs. This parameter is only sent to the GMSC in response to a Send Routing Information request which indicates the the GMSC supports IST.

Number Portability Status

This parameter indicates the number portability status of the subscriber. This parameter may be present if the sender of SRIack is NPLR.

Supported CAMEL Phases in VMSC

[CR editor's note: Underlining applied in above line.]

The use of this parameter and the requirements for its presence are specified in 3GPP TS 23.078.

Offered CAMEL 4 CSIs in VMSC

[CR editor's note: Underlining applied in above line.]

This parameter is defined in clause 7.6.3.36F.

User error

This parameter is sent by the responder when an error is detected and if present, takes one of the following values:

- Unknown Subscriber;

  The diagnostic for the Unknown Subscriber error may indicate "NPDB Mismatch".

- Number changed;

- Call Barred;

  This error will indicate that either incoming calls are barred for this MS or that calls are barred due to Operator Determined Barring (see 3GPP TS 22.041 [8] for a definition of this network feature);

- CUG Reject;

  The value of this error cause will indicate the reason for CUG Reject;

- Bearer Service Not Provisioned;

- Teleservice Not Provisioned;

  A subscription check has been performed and the call has not passed the check due to incompatibility with regard to the requested service. Depending on the nature of the incompatibility, either of these messages will be returned;

- Facility Not Supported;

- Absent Subscriber;

  This indicates that the location of the MS is not known (either the station is not registered and there is no location information available or the Provide Roaming Number procedure fails due to IMSI detached flag being

set), or the GMSC requested forwarding information with a forwarding reason of not reachable, and the call forwarding on MS not reachable service is not active;

- Busy Subscriber;

  This indicates that Call Forwarding on Busy was not active for the specified basic service group when the GMSC requested forwarding information with a forwarding reason of busy;

  The error may also indicate that the subscriber is busy due to an outstanding CCBS recall. In the error data it may then be specified that CCBS is possible for the busy encountered call;

- No Subscriber Reply;

  This indicates that Call Forwarding on No Reply was not active for the specified basic service group when the GMSC requested forwarding information with a forwarding reason of no reply;

- OR Not Allowed;

  This indicates that the HLR is not prepared to accept an OR interrogation from the GMSC, or that calls to the specified subscriber are not allowed to be optimally routed;

- Forwarding Violation;

- System Failure;

- Data Missing;

- Unexpected Data Value.

See clause 7.6 for a definition of these errors.

Provider error

These are defined in clause 7.6.

****** End of Document ******

3GPP TSG-CN WG4 Meeting #17 **N4-021531**
Bangkok, Thailand, 11th - 15th November 2002

CHANGE REQUEST

⌘ **29.002** **CR** **522** ⌘ **rev** ⌘ Current version: **5.3.0** ⌘

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Introduction of the CHOICE element "netDetNotReachable" for PS-SubscriberState
Source:	⌘	CN4
Work item code:	⌘	CAMEL4
Date:	⌘	12/11/2002
Category:	⌘	F
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	This CR is introduced due to the changes reported in CR N2-021007. In order HLR to indicate that the network can determine from its internal data that the MS is not reachable, the CHOICE element "netDetNotReachable" should be added in PS-SubscriberState.
Summary of change:	⌘	Addition of "netDetNotReachable" in PS-SubscriberState
Consequences if not approved:	⌘	Incorrect and inconsistent implementation of ATI in HLR.

Clauses affected:	⌘	17.7.1, Annex B

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		23.078 (N2-021007)
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

***** *First Modification* *****

17.7 MAP constants and data types

17.7.1 Mobile Service data types

…

```
GeodeticInformation ::= OCTET STRING (SIZE (10))
--   Refers to Calling Geodetic Location defined in Q.763 (1999).
--   Only the description of an ellipsoid point with uncertainty circle
--   as specified in Q.763 (1999) is allowed to be used
--   The internal structure according to Q.763 (1999) is as follows:
--        Screening and presentation indicators                          1 octet
--        Type of shape (ellipsoid point with uncertainty circle)        1 octet
--        Degrees of Latitude                                            3 octets
--        Degrees of Longitude                                           3 octets
--        Uncertainty code                                               1 octet
--        Confidence                                                     1 octet
```

```
LocationNumber ::= OCTET STRING (SIZE (2..10))
     -- the internal structure is defined in ITU-T Rec Q.763
```

```
SubscriberState ::= CHOICE {
     assumedIdle                    [0] NULL,
     camelBusy                      [1] NULL,
     netDetNotReachable             NotReachableReason,
     notProvidedFromVLR             [2] NULL}
```

```
PS-SubscriberState ::= CHOICE {
     notProvidedFromSGSN            [0] NULL,
     ps-Detached                    [1] NULL,
     ps-AttachedNotReachableForPaging    [2] NULL,
     ps-AttachedReachableForPaging       [3] NULL,
     ps-PDP-ActiveNotReachableForPaging  [4] PDP-ContextInfoList,
     ps-PDP-ActiveReachableForPaging     [5] PDP-ContextInfoList,
     netDetNotReachable             NotReachableReason}
```

***** *Next Modification* *****

Annex B (informative): Fully expanded ASN.1 sources for abstract syntaxes of MAP

Annex B is not part of the standard, it is included for information purposes only.

For every (Value)Assignment in the root ASN.1 module all the used defined types and defined values, which are defined within the ASN.1 module or imported from ASN.1 modules, are replaced by the constructs this type or value is composed of.

The fully expanded ASN.1 root module is itself a correct and equivalent representation of the MAP-Protocol.

It allows to see at all the parameters, including all nested ones for a specific operationcode or errorcode at once.

Note that for those operations which use a result without parameters the word “RESULT” is not shown. Empty results are only defined in the ASN.1 description in clause 17.

B.1 Fully Expanded ASN.1 Source of MAP-Protocol/TCAPMessages

```
--  Expanded ASN1 Module 'MAP-MobileServiceOperations'
--SIEMENS ASN.1 Compiler       R5.40  (Production_5.40)
--           Date: 2002-09-09 Time: 09:52:02

MAP-MobileServiceOperations{ 0 identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3) map-
MobileServiceOperations (5) version8 (8) }

DEFINITIONS

::=

BEGIN

EXPORTS
   updateLocation,
   cancelLocation,
   purgeMS,
   sendIdentification,
   updateGprsLocation,
   provideSubscriberInfo,
   anyTimeInterrogation,
   anyTimeSubscriptionInterrogation,
   anyTimeModification,
   noteSubscriberDataModified,
   prepareHandover,
   sendEndSignal,
   processAccessSignalling,
   forwardAccessSignalling,
   prepareSubsequentHandover,
   sendAuthenticationInfo,
   authenticationFailureReport,
   checkIMEI,
   insertSubscriberData,
   deleteSubscriberData,
   reset,
   forwardCheckSS-Indication,
   restoreData,
   sendRoutingInfoForGprs,
   failureReport,
   noteMsPresentForGprs,
   noteMM-Event;


…



anyTimeInterrogation OPERATION  ::=  {
   ARGUMENT     SEQUENCE {
      subscriberIdentity   [0] CHOICE {
         imsi        [0] IMPLICIT OCTET STRING (  SIZE (3 .. 8 ) ),
         msisdn      [1] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1 .. 9 ) )},
      requestedInfo       [1] IMPLICIT SEQUENCE {
         locationInformation   [0] IMPLICIT NULL OPTIONAL,
         subscriberState       [1] IMPLICIT NULL OPTIONAL,
         extensionContainer    [2] IMPLICIT SEQUENCE {
            privateExtensionList   [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
               SEQUENCE {
                  extId      MAP-EXTENSION .&extensionId  ( {
                     ,
                     ...} ) ,
                  extType    MAP-EXTENSION .&ExtensionType  ( {
                     ,
                     ...} { @extId   }  )  OPTIONAL} OPTIONAL,
            pcs-Extensions        [1] IMPLICIT SEQUENCE {
               ... } OPTIONAL,
            ... } OPTIONAL,
         ... ,
         currentLocation       [3] IMPLICIT NULL OPTIONAL,
         requestedDomain       [4] IMPLICIT ENUMERATED {
            cs-Domain    (0 ),
```

```
      ps-Domain    (1 ),
      ... } OPTIONAL,
    imei              [6] IMPLICIT NULL OPTIONAL,
    ms-classmark      [5] IMPLICIT NULL OPTIONAL},
  gsmSCF-Address      [3] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1 .. 9 ) ),
  extensionContainer  [2] IMPLICIT SEQUENCE {
    privateExtensionList  [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
      SEQUENCE {
        extId     MAP-EXTENSION .&extensionId  ( {
          ,
          ...} ) ,
        extType   MAP-EXTENSION .&ExtensionType  ( {
          ,
          ...} { @extId  } )  OPTIONAL} OPTIONAL,
    pcs-Extensions       [1] IMPLICIT SEQUENCE {
      ... } OPTIONAL,
    ... } OPTIONAL,
  ... }
RESULT    SEQUENCE {
  subscriberInfo      SEQUENCE {
    locationInformation      [0] IMPLICIT SEQUENCE {
      ageOfLocationInformation         INTEGER ( 0 .. 32767 ) OPTIONAL,
      geographicalInformation          [0] IMPLICIT OCTET STRING (  SIZE (8 ) ) OPTIONAL,
      vlr-number                       [1] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1 .. 9 ) ) OPTIONAL,
      locationNumber                   [2] IMPLICIT OCTET STRING (  SIZE (2 .. 10 ) ) OPTIONAL,
      cellGlobalIdOrServiceAreaIdOrLAI  [3] CHOICE {
        cellGlobalIdOrServiceAreaIdFixedLength    [0] IMPLICIT OCTET STRING (  SIZE (7 ) ),
        laiFixedLength                    [1] IMPLICIT OCTET STRING (  SIZE (5 ) )} OPTIONAL,
      extensionContainer               [4] IMPLICIT SEQUENCE {
        privateExtensionList  [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
          SEQUENCE {
            extId     MAP-EXTENSION .&extensionId  ( {
              ,
              ...} ) ,
            extType   MAP-EXTENSION .&ExtensionType  ( {
              ,
              ...} { @extId  } )  OPTIONAL} OPTIONAL,
        pcs-Extensions       [1] IMPLICIT SEQUENCE {
          ... } OPTIONAL,
        ... } OPTIONAL,
      ... ,
      selectedLSA-Id                   [5] IMPLICIT OCTET STRING (  SIZE (3 ) ) OPTIONAL,
      msc-Number                       [6] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1 .. 9 ) ) OPTIONAL,
      geodeticInformation              [7] IMPLICIT OCTET STRING (  SIZE (10 ) ) OPTIONAL,
      currentLocationRetrieved         [8] IMPLICIT NULL OPTIONAL,
      sai-Present                      [9] IMPLICIT NULL OPTIONAL} OPTIONAL,
    subscriberState          [1] CHOICE {
      assumedIdle            [0] IMPLICIT NULL,
      camelBusy              [1] IMPLICIT NULL,
      netDetNotReachable     ENUMERATED {
        msPurged         (0 ),
        imsiDetached     (1 ),
        restrictedArea   (2 ),
        notRegistered    (3 )},
      notProvidedFromVLR     [2] IMPLICIT NULL} OPTIONAL,
    extensionContainer       [2] IMPLICIT SEQUENCE {
      privateExtensionList  [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
        SEQUENCE {
          extId     MAP-EXTENSION .&extensionId  ( {
            ,
            ...} ) ,
          extType   MAP-EXTENSION .&ExtensionType  ( {
            ,
            ...} { @extId  } )  OPTIONAL} OPTIONAL,
      pcs-Extensions       [1] IMPLICIT SEQUENCE {
        ... } OPTIONAL,
      ... } OPTIONAL,
    ... ,
    locationInformationGPRS  [3] IMPLICIT SEQUENCE {
      cellGlobalIdOrServiceAreaIdOrLAI  [0] CHOICE {
        cellGlobalIdOrServiceAreaIdFixedLength    [0] IMPLICIT OCTET STRING (  SIZE (7 ) ),
        laiFixedLength                    [1] IMPLICIT OCTET STRING (  SIZE (5 ) )} OPTIONAL,
      routeingAreaIdentity             [1] IMPLICIT OCTET STRING (  SIZE (6 ) ) OPTIONAL,
      geographicalInformation          [2] IMPLICIT OCTET STRING (  SIZE (8 ) ) OPTIONAL,
      sgsn-Number                      [3] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1 .. 9 ) ) OPTIONAL,
      selectedLSAIdentity              [4] IMPLICIT OCTET STRING (  SIZE (3 ) ) OPTIONAL,
      extensionContainer               [5] IMPLICIT SEQUENCE {
```

```
    privateExtensionList   [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
      SEQUENCE {
        extId      MAP-EXTENSION .&extensionId  ( {
          ,
          ...} ) ,
        extType    MAP-EXTENSION .&ExtensionType  ( {
          ,
          ...} { @extId   } )  OPTIONAL} OPTIONAL,
    pcs-Extensions         [1] IMPLICIT SEQUENCE {
      ... } OPTIONAL,
    ... } OPTIONAL,
  ... ,
  sai-Present                    [6] IMPLICIT NULL OPTIONAL,
  geodeticInformation            [7] IMPLICIT OCTET STRING (  SIZE (10 ) ) OPTIONAL,
  currentLocationRetrieved       [8] IMPLICIT NULL OPTIONAL,
  ageOfLocationInformation       [9] IMPLICIT INTEGER ( 0 .. 32767 ) OPTIONAL} OPTIONAL,
ps-SubscriberState       [4] CHOICE {
  notProvidedFromSGSN                [0] IMPLICIT NULL,
  ps-Detached                        [1] IMPLICIT NULL,
  ps-AttachedNotReachableForPaging   [2] IMPLICIT NULL,
  ps-AttachedReachableForPaging      [3] IMPLICIT NULL,
  ps-PDP-ActiveNotReachableForPaging     [4] IMPLICIT SEQUENCE  (  SIZE (1 .. 50 ) ) OF
    SEQUENCE {
      pdp-ContextIdentifier     [0] IMPLICIT INTEGER ( 1 .. 50 ),
      pdp-ContextActive         [1] IMPLICIT NULL OPTIONAL,
      pdp-Type                  [2] IMPLICIT OCTET STRING (  SIZE (2 ) ),
      pdp-Address               [3] IMPLICIT OCTET STRING (  SIZE (1 .. 16 ) ) OPTIONAL,
      apn-Subscribed            [4] IMPLICIT OCTET STRING (  SIZE (2 .. 63 ) ) OPTIONAL,
      apn-InUse                 [5] IMPLICIT OCTET STRING (  SIZE (2 .. 63 ) ) OPTIONAL,
      nsapi                     [6] IMPLICIT INTEGER ( 0 .. 15 ) OPTIONAL,
      transactionId             [7] IMPLICIT OCTET STRING (  SIZE (1 .. 2 ) ) OPTIONAL,
      teid-ForGnAndGp           [8] IMPLICIT OCTET STRING (  SIZE (4 ) ) OPTIONAL,
      teid-ForIu                [9] IMPLICIT OCTET STRING (  SIZE (4 ) ) OPTIONAL,
      ggsn-Address              [10] IMPLICIT OCTET STRING (  SIZE (5 .. 17 ) ) OPTIONAL,
      qos-Subscribed            [11] IMPLICIT OCTET STRING (  SIZE (1 .. 9 ) ) OPTIONAL,
      qos-Requested             [12] IMPLICIT OCTET STRING (  SIZE (1 .. 9 ) ) OPTIONAL,
      qos-Negotiated            [13] IMPLICIT OCTET STRING (  SIZE (1 .. 9 ) ) OPTIONAL,
      chargingId                [14] IMPLICIT OCTET STRING (  SIZE (4 ) ) OPTIONAL,
      chargingCharacteristics   [15] IMPLICIT OCTET STRING (  SIZE (2 ) ) OPTIONAL,
      rnc-Address               [16] IMPLICIT OCTET STRING (  SIZE (5 .. 17 ) ) OPTIONAL,
      extensionContainer        [17] IMPLICIT SEQUENCE {
        privateExtensionList   [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
          SEQUENCE {
            extId      MAP-EXTENSION .&extensionId  ( {
              ,
              ...} ) ,
            extType    MAP-EXTENSION .&ExtensionType  ( {
              ,
              ...} { @extId   } )  OPTIONAL} OPTIONAL,
        pcs-Extensions         [1] IMPLICIT SEQUENCE {
          ... } OPTIONAL,
        ... } OPTIONAL,
      ... },
  ps-PDP-ActiveReachableForPaging        [5] IMPLICIT SEQUENCE  (  SIZE (1 .. 50 ) ) OF
    SEQUENCE {
      pdp-ContextIdentifier     [0] IMPLICIT INTEGER ( 1 .. 50 ),
      pdp-ContextActive         [1] IMPLICIT NULL OPTIONAL,
      pdp-Type                  [2] IMPLICIT OCTET STRING (  SIZE (2 ) ),
      pdp-Address               [3] IMPLICIT OCTET STRING (  SIZE (1 .. 16 ) ) OPTIONAL,
      apn-Subscribed            [4] IMPLICIT OCTET STRING (  SIZE (2 .. 63 ) ) OPTIONAL,
      apn-InUse                 [5] IMPLICIT OCTET STRING (  SIZE (2 .. 63 ) ) OPTIONAL,
      nsapi                     [6] IMPLICIT INTEGER ( 0 .. 15 ) OPTIONAL,
      transactionId             [7] IMPLICIT OCTET STRING (  SIZE (1 .. 2 ) ) OPTIONAL,
      teid-ForGnAndGp           [8] IMPLICIT OCTET STRING (  SIZE (4 ) ) OPTIONAL,
      teid-ForIu                [9] IMPLICIT OCTET STRING (  SIZE (4 ) ) OPTIONAL,
      ggsn-Address              [10] IMPLICIT OCTET STRING (  SIZE (5 .. 17 ) ) OPTIONAL,
      qos-Subscribed            [11] IMPLICIT OCTET STRING (  SIZE (1 .. 9 ) ) OPTIONAL,
      qos-Requested             [12] IMPLICIT OCTET STRING (  SIZE (1 .. 9 ) ) OPTIONAL,
      qos-Negotiated            [13] IMPLICIT OCTET STRING (  SIZE (1 .. 9 ) ) OPTIONAL,
      chargingId                [14] IMPLICIT OCTET STRING (  SIZE (4 ) ) OPTIONAL,
      chargingCharacteristics   [15] IMPLICIT OCTET STRING (  SIZE (2 ) ) OPTIONAL,
      rnc-Address               [16] IMPLICIT OCTET STRING (  SIZE (5 .. 17 ) ) OPTIONAL,
      extensionContainer        [17] IMPLICIT SEQUENCE {
        privateExtensionList   [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
          SEQUENCE {
            extId      MAP-EXTENSION .&extensionId  ( {
              ,
```

```
                    ...} ) ,
                  extType    MAP-EXTENSION .&ExtensionType  ( {
                    ,
                    ...} { @extId   }  )  OPTIONAL} OPTIONAL,
              pcs-Extensions        [1] IMPLICIT SEQUENCE {
                ... } OPTIONAL,
              ... } OPTIONAL,
            ... }} OPTIONAL,
    imei                  [5] IMPLICIT OCTET STRING (  SIZE (8 ) ) OPTIONAL,
    ms-Classmark2         [6] IMPLICIT OCTET STRING (  SIZE (3 ) ) OPTIONAL,
    gprs-MS-Class         [7] IMPLICIT SEQUENCE {
      mSNetworkCapability      [0] IMPLICIT OCTET STRING (  SIZE (1 .. 8 ) ),
      mSRadioAccessCapability  [1] IMPLICIT OCTET STRING (  SIZE (1 .. 50 ) ) OPTIONAL} OPTIONAL},
  extensionContainer   SEQUENCE {
    privateExtensionList   [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
      SEQUENCE {
        extId      MAP-EXTENSION .&extensionId  ( {
          ,
          ...} ) ,
        extType    MAP-EXTENSION .&ExtensionType  ( {
          ,
          ...} { @extId   }  )  OPTIONAL} OPTIONAL,
    pcs-Extensions        [1] IMPLICIT SEQUENCE {
      ... } OPTIONAL,
    ... } OPTIONAL,
  ... }
ERRORS    {
  systemFailure |
  ati-NotAllowed |
  dataMissing |
  unexpectedDataValue |
  unknownSubscriber }
CODE    local     : 71
}
```

****** End of Document ******

3GPP TSG CN WG4 Meeting #17 **N4-021395**
Bangkok, THAILAND, 11th – 15th November 2002

CR-Form-v7

CHANGE REQUEST

⌘ **29.232** **CR** **052** ⌘ **rev** **2** ⌘ Current versi **5.3.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	CAMEL4 flexible tone package			
Source:	⌘	CN4			
Work item code:	⌘	CAMEL4	***Date:*** ⌘	20/09/2002	
Category:	⌘	**F**	***Release:*** ⌘	Rel-5	
		Use one of the following categories:		*Use one of the following releases:*	
		F *(correction)*		*2*	*(GSM Phase 2)*
		A *(corresponds to a correction in an earlier release)*		*R96*	*(Release 1996)*
		B *(addition of feature),*		*R97*	*(Release 1997)*
		C *(functional modification of feature)*		*R98*	*(Release 1998)*
		D *(editorial modification)*		*R99*	*(Release 1999)*
		Detailed explanations of the above categories can be found in 3GPP TR 21.900.		*Rel-4*	*(Release 4)*
				Rel-5	*(Release 5)*
				Rel-6	*(Release 6)*

Reason for change:	⌘	In order to support a variable sequence of tones used by audible indicators in call duration control as specified in CAMEL Phase 4 (stage 2) 3GPP TS 23.078 chapter 4.5.7.1.2 the 3G Expanded Call Progress Tones Generator Package should be extended by a new package including signal which includes the tone/burst information as parameters. The new tone is proposed as an extension (new packet) to "3G Expanded Call Progress Tones Generator Package", since "3G Expanded Call Progress Tones Generator Package" is already available in 3GPP release 4 and release 5. In this version (R2) of the CR the missing formats & codes are added.
Summary of change:	⌘	Addition of a package that extend the "3G Expanded Call Progress Tones Generator Package". The new package defines a signal with the CAMEL 4 tone and burst parameters as signal parameters.
Consequences if not approved:	⌘	Variable sequence of audible tones for call duration control will not work as specified in 3GPP TS 23.078 in CSSPLIT architecture.

Clauses affected:	⌘	New section 15.1.8 shall be added to TS 29.232., 10, 14.2.11			
		Y	**N**		
Other specs Affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

****** First Modified Section ******

10 Formats and codes

Table 1 shows the parameters which are required, in addition to those defined in the subclause "Formats and Codes" of ITU—T Recommendation Q.1950 (see 3GPP TS 29.205 [7]).

The coding rules applied in ITU-T Recommendation H.248 [10] for the applicable coding technique shall be followed for the UMTS capability set.

Table 1: Additional parameters required

actprot	Signal descriptor	As for the signal "Activate protocol" in subclause 15.1.2.3
Mode	Local control	As for the property "UP mode of operation" in subclause 15.1.1.1
Version	Local control	As for the property "Upversion" in subclause 15.1.1.1
Value	Local control	As for the property " Delivery of errounous SDUs" in subclause 15.1.1.1
Interface	Local control	As for the property " Interface" in subclause 15.1.1.1
Initdirection	Local control	As for the property " Initialisation Direction" in subclause 15.1.1.1
PLMN bearer capability	Local control	As for the property "PLMN BC" in subclause 15.1.2.1
Coding	Local control	As for the property " GSM channel coding" in subclause 15.1.2.1
Tfoenable	Local control	As for the property " TFO activity control" in subclause 15.1.3.1
Codeclist	Local control	As for the property" TFO Codec List" in subclause 15.1.3.1
Result	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Protocol Negotiation Result" in subclause 15.1.2.2
Cause	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Protocol Negotiation Result" in subclause 15.1.2.2
Rate	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Rate Change" in subclause 15.1.2.2
Optimalcodec	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Optimal Codec Type" in subclause 15.1.3.2
Distlist	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Distant TFO List" in subclause 15.1.3.2
Off / value	Local control	As for the property "Echo cancelling" in subclause E.13.1 in ITU-T Recommendation H.248 [10]
Error	Error descriptor	As defined in the subclause "Command error code" in ITU-T Recommendation H.248 [10]
Reduction	ObservedEvent descriptor	As for the ObserverdEventDescriptor in “MGW Resource Congestion Handling– Indication” in subclause 14.1.15.
Bearer Modification Support	EventDescriptor	As for the EventsDescriptor in "Bearer Modification Support" in subclause 15.1.4.2.
Bearer modification possible	ObservedEvent descriptor	As for the ObserverdEventDescriptor in “Bearer Modification Support” in subclause 15.1.4.2.
Ctmstate	TerminationState	As for the TerminationState “Text termination connection state” in subclause 15.1.6.1.
Ctmtransport	Local control	As for the property “Text Transport” in subclause 15.1.6.1.
Ctmtext version	Local control	As for the property ” Text Protocol Version” in subclause 15.1.6.1.
Connchng	ObservedEventDescriptor	As for the ObservedEventDescriptor ” Connection State Change in subclause 15.1.6.2
Ctmbits	Statistics descriptor	As for the Statistics descriptor “Characters Transferred” in subclause 15.1.6.4
Bitrate	Local control	As for the property" Bitrate" in subclause 15.1.7.1
Flextone	Local control	As for the signal "Flexible Tone " in subclause 15.1. 8.1

****** Next Modified Section ******

14.2.11 Send Tone

This procedure is the same as that defined in the subclause "Media Content Insertion" - "Insert Tone" in ITU-T Recommendation Q.1950 (see 3GPP TS 29.205 [7]) with the following additions.

Address Information	Control information	Bearer information
	If CAMEL Prepaid Warning Tone Signal = warning tone Or Signal = flextone	

****** Next Modified Section ******

15.1.8 Flexible Tone Generator Package

PackageID: threegflex (0x00??) Note: **PackageID to be confirmed and registered by IANA**.

Version: 1

Extends: threegxcg version 1

This package extends "3G Expanded Call Progress Tones Generator Package", as defined in chapter 15.1.4 above. This package adds a new tone for call duration control in CAMEL phase 4, supporting variable sequence of tones and burst list.

15.1.8.1 Properties

None

15.1.8.2 Events

None

15.1.8.3 Signals

Signal Name: Flexible Tone

SignalID: ft (0x0050)

Description:

Generate flexible 900Hz tone. The physical characteristics of Flexible Tone is not described in the additional parameters. It shall be available in the Media Gateway..

SignalType: Brief

Duration: Provisioned

Additional Parameters:

Parameter Name: Burst List Direction

Description: Used to indicate the direction the tone is to be sent. External indicates that the tone is sent from the MG to an external point. Internal indicates that the tone is played into the Context to the other terminations. Bothway indicates both internal and external behaviour.

ParameterID: bld (0x0001)

Type: Enumeration

Possible Values:

"Ext" (0x01): External

"Int" (0x02): Internal

"Both" (0x03): Bothway

Default: "Ext" (0x01)

Parameter Name: numberOfBursts

Description: Number of bursts in the burst list.

ParameterID: nob (0x0002)

Type: Integer

Possible values: 1 to 3

Default: 1

Parameter Name: burstInterval

Description: Time interval between two consecutive bursts expressed in amount of 100 millisecond units.

ParameterID: bi (0x0003)

Type: Integer

Possible values: 1 to 20

Default: 2

Parameter Name: numberOfTonesInBurst

Description: Number of tones to be played in each burst.

ParameterID: notib (0x0004)

Type: Integer

Possible values: 1 to 3

Default: 3

Parameter Name: toneDuration

Description: Duration of each tone in a burst expressed in amount of 100 millisecond units.

ParameterID: td (0x0005)

Type: Integer

Possible values: 1 to 20

Default: 2

Parameter Name: toneInterval

Description: Time interval between two consecutive tones in a burst expressed in amount of 100 millisecond units.

ParameterID: ti (0x0006)

Type: Integer

Possible values: 1 to 20

Default: 2

15.1.8.4 Statistics

None

15.1.8.5 Procedures

The MGW should generate the tones using the above mentioned parameters as specified in 3GPP TS 23.078 [20] clause 4.5.7.1.2

In case MGC requests to generate a flexible tone specifying a signal type “Timeout” and a “Duration” longer than the time needed to play the whole Burst List no action will be taken on the incoming stream to fill the gap. I.e. if any user plane stream is received on one side of the termination after the end of the burst list, it will be present, unchanged, on the other side of the termination as well (transparent mode).